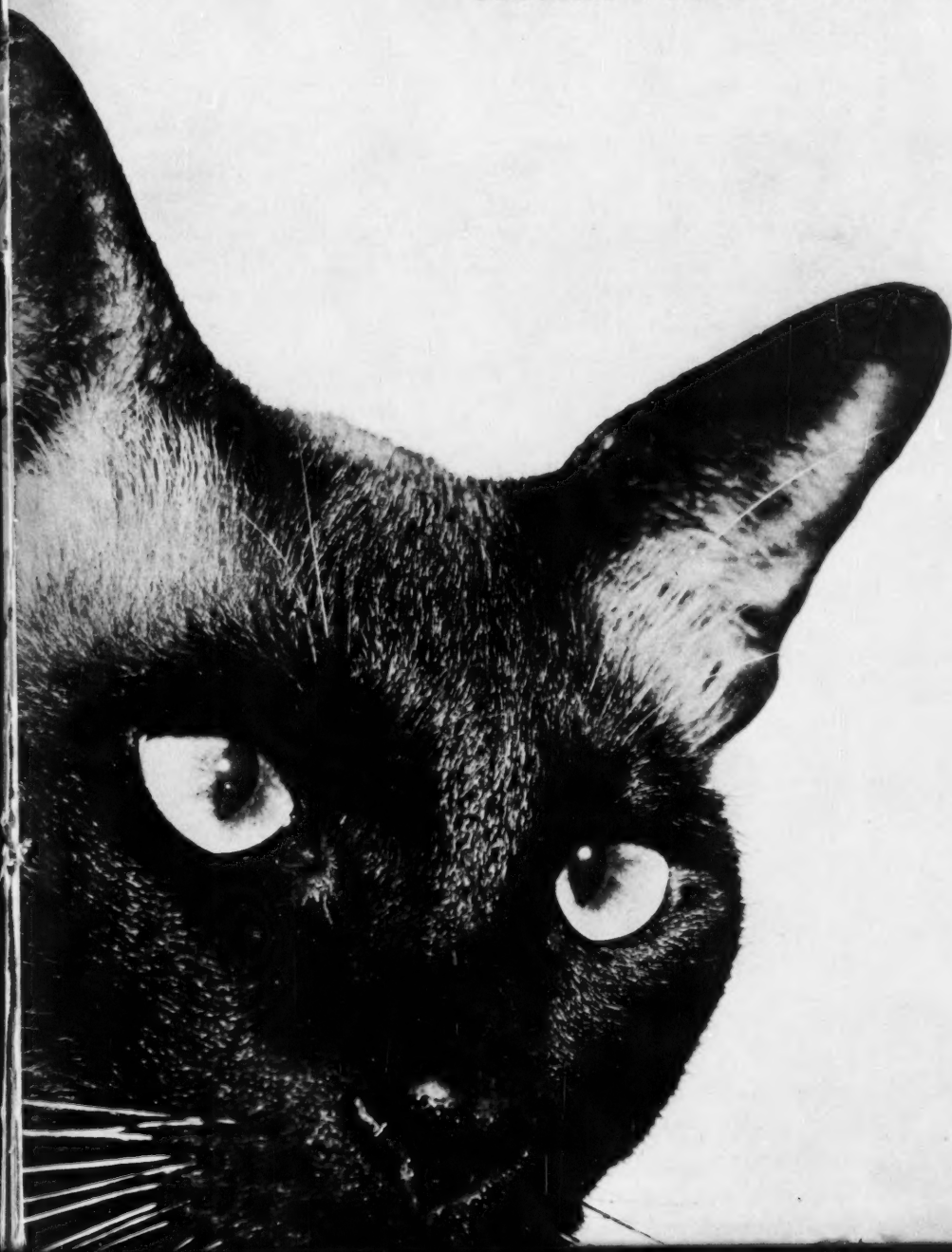


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Articles

The Practical Use of Perspective by Joseph Foldes 15

Perspective is an often misunderstood aspect of photography. The author here spells out for us its basic elements for better pictures.



Design in Nature by Tet Arnold von Borsig 40

Though familiar in Europe, close-up photography of nature is relatively new to this country. This article shows how the author "closes in" on his subject.



One Model Is All You Need by William J. Syzdek 23

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Our March Cover



The extraordinary cat shot by Harold Blackstone is only part of his original photograph. For details of how he used cropping for dramatic effect, see Close-Ups, page 8.

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Notes From A Laboratory

By Herbert C. McKay



A long time ago when 35mm was just becoming popular I had a camera. It was brick-shaped, about 1½x3x8 inches and it had the capacity of some 25 feet of film. In those days we bought the regular motion picture spools of 100 feet (for four dollars, incidentally) from which we cut and loaded as we needed film. This camera could hardly have been more simple. I used to turn a crank to wind the film and pull back slightly to make the exposure. That is all there was to it! There were no adjustable speeds to the shutter, just one, like a box camera; and there were no adjustable diaphragm stops. Obviously there could be only one set of conditions to give normal exposure, yet the camera was sold for general use.

When I stop to think about it, nine owners out of ten do not even know that there are various sized diaphragms in their cameras. They shoot everything at the fixed speed and the maximum aperture. With these, as with the old 35 I used, the percentage of usable negatives was surprisingly high. It was higher, as a matter of fact, than many users now obtain with their expensive super-deluxe miniatures! However, please note that "usable" negatives, not really good ones, are under consideration here.

This is not a defense of the ultra-simple camera. On the contrary, I hold no brief for it other than as a beginner's box. The point is that in color work today we are very largely in the same category as the users of minimum flexibility cameras.

Today we buy color film. We are told that the exposure index is such and such. We measure each subject with our meter and give exactly the exposure prescribed. The pictures are fair to good, but not really excellent. Then we see the work turned out by some friend who does not even pretend to know about photography and his work is much better. We ask about his methods and find that he does exactly what we do. At this point we may do one of two things. We may just set it down to our own bad luck, which is very foolish, or we may ask the friend to let us make some shots with his equipment. This is a wise step. We immediately learn whether the fault lies with us or with our equipment.

We find, when the films are processed, that our shots are just as good as his, probably a bit better. Then we remember that we have about four times as much money invested in our camera than he has in his. Quite naturally, we believe that we have been swindled. Our friend's equipment does better work than ours, so

it must be better. That seems to be plain common sense.

Again, two things can be done. Good equipment can be sacrificed in order to buy the same kind our friend uses. If this is done, although it may perform like his, it also will lack, in other respects, the quality to which we are accustomed. We can be wise and keep our camera and try to find out what makes the difference. Above all, blame should not be levied on the lens, camera or meter. Rather, the problem itself must be studied.

If you have experienced this type of difficulty the following suggestions may serve as a guide to help you analyze the problem. First, meters must be checked. Perhaps another meter reads higher and thus indicates less (or it might be more) exposure than your meter. It may be found, too, that your camera has a coated lens while your friend's does not. If technical reference books are consulted you may find that your lens has a basic transmission of above 80 percent while his has only about 50 percent. Taking everything into consideration you might discover that he is giving only about 60 percent the exposure you do, although according to the shutter speed and diaphragm numbers the two are identical. You will probably find that his shutter has much lower efficiency than yours which may to some extent counteract the other factors. Cheap shutters usually do run slower for any given nominal speed than do good ones.

It is an easily verified fact that exposures made with two cameras at the same shutter and diaphragm setting may vary as much as a ratio of one-to-two!

So at the outset there is every indication that the difference lies in the fact that the exposures were different. But, you say, if my equipment is of high efficiency, are not my exposures more nearly correct than his? While this is all very true it must also be remembered that any numerical values published must be based upon the average camera used and that by far the greatest number of cameras in use have relatively low efficiency.

For some reason many amateurs get this far and then balk. If the official rating for a film is ASA 10, they will continue to use that figure in spite of all evidence that it is wrong! If the published rating for a given film is found to result in overexposure, then a higher rating number should be used. Official speed ratings are not issued as immutable laws. They are simply relative guides which we all

(Continued on page 10)

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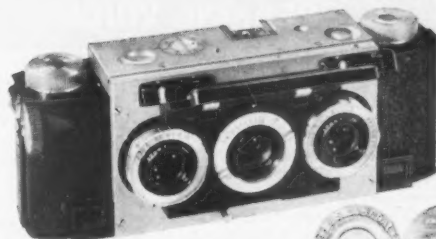
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MUSEUM SCHEDULES PHOTO SHOW FOR LATE SPRING

"New England—A Photographic Interpretation," the title of the photographic show to be presented by the de Cordova Museum in Lincoln, Massachusetts, will be on exhibition May 6 to June 10, 1952. The show, to be divided into four parts, will consist of an historical section, the work of an invited group of photographers, a group of industrial photographs and winning pictures from a contest being run in conjunction with the show.

Supplementing the first section of the exhibition, works from the files of the Library of Congress will interpret the depression as illustrated by Ben Shahn,

Marjorie Collins, Walker Evans and others then on the staff of the Farm Security Administration.

Excerpts from the forties which illustrate Americana will consist of OWI photographs including Roy Stryker's documentation of oil. This is an undertaking which integrates emphasis on design and sympathy with human beings at work. Other photographs collected under Stryker's supervision document many other phases of the American scene.

The work of the group of five photographers scheduled for the exhibition is composed of George Montgomery's Boston

photographs; Sid Grossman's Provincetown pictures; Kosti Ruohomaa's rural scenes; Jules Aarons' excerpts from "Junkyards" and "Saints' Feast Parades" and Gyorgy Kepes' interpretation of patterns in science and industry. Mr. Kepes will present the work of some of his students in addition to his own.

Contest Open to New Englanders

In all probability the major portion of the show is going to be occupied by the contest which will comment on historical, human, industrial and natural resources of New England. Awards will be one-man shows held during the coming year at the museum.

Contestants may submit from four to ten photographs and are free to use any size and cropping desired. Entries with return postage included should be mailed no later than April 10, 1952.

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DU PONT'S NEW FILM BASE PROMISES INNOVATIONS

Polyester, a synthetic textile fiber recently developed after some five years' research by Du Pont, has been announced as a new base for photographic films. Not only is it reported to have outstanding qualities of toughness and dimensional stability, but also it is classified as a safety base less flammable than those currently on the market.

The future of the synthetic is believed to lie especially in the motion picture field. Because of the base's characteristic of tear resistance it may be possible to run film through a projector three to four times as long as usual before signs of wear are indicated on the perforations.

Motion Picture Film Thickness May be Reduced by 20 Percent

In addition, the new material has a quality of stiffness which may result in at least a 20 percent reduction of motion picture film thickness. Such a step forward in film development would effect savings in both handling and processing and would bring about greater footage per reel.

Another characteristic, the lack of brittleness at low temperatures, will be advantageous especially in such phases of photography as aerial mapping.

Though production of polyester will start shortly at a pilot plant at the company's Parlin, N.J. laboratory, large-scale production will await tests now being conducted in collaboration with the Motion Picture Research Council and others. If tests are met, two years or more will be needed to complete large-scale manufacturing facilities, the company reports.

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Farm Pictures Will Be Purchased

Dear Sir:

Recently we have assumed the duties as editors for *Goodyear Farm Progress*, a farm magazine distributed from coast to coast through the Goodyear Farm Tire Dealers.

We are in a position to purchase from amateur free-lance photographers certain types of pictures which they may have in their collections or have occasion to take if they know there is a market for them.

We would like good, clear pictures of the following classes and will pay from \$10 to \$25 each during 1952. Pictures should be 8x10 glossy or contact prints with negatives included.

1. Farm scenes and farm people that tell a story—planting, spraying, cultivating or harvesting.
2. Farm operations showing new and modern machinery at work—where large tire treads are shown, they must be Goodyear.
3. Farm people at work with crops or livestock.
4. Farm people on vacation or enjoying recreation inside or outside.

Captions with names and places should be included with each picture where possible. Photo releases must be supplied—forms will be furnished on request or upon submission of usable pictures. Pictures for consideration should be sent along with a return, self-addressed stamped envelope to me at this address.

Harold Guither, Editor
Goodyear Farm Progress
Doane Agricultural Service
5144 Delmar Blvd.
St. Louis 8, Mo.

Mr. Van Schaick's shots of the neighborhood kids were taken with a 2 1/4 x 2 1/4 IkoFlex IIA at f/3.5, 1/25 second. Plus X film was developed in Minicol at 65F after a 10 minute latensification period as described in Mr. Foldes' article (Amphoto, January, p. 58). "In order to keep the contrast up and visible grain at a minimum," says Mr. Van Schaick, "Varigam DL was used with the No. 9 filter over the enlarger lens and the paper developed in Dektol 1:2."

Who Will Write?

Dear Sir:

Since coming to Canada I have become a keen reader of *AMERICAN PHOTOGRAPHY* and wonder if you could put me in touch with amateur photographers anywhere in the world.

My main photographic interests are portraits, places of interest and figure studies. I am 27 years old, married, and would like to correspond, exchange photos, magazines and ideas.

Eric A. Viccary
61, Thurston Rd.
Toronto, Ont.

Latensification in Practice

Dear Sir:

In the last issue of your fine publication, Mr. Foldes elaborated on a process concerning latensification of negatives. I can remember hearing something of a procedure similar to this some years ago but have never been able to find anyone who actually used it.

I don't think I had been finished with the article more than 30 minutes when a member of the local PTA . . . asked if I would make some photographs of the annual first grade Christmas play . . . I decided to use the latensification process.

It is useless to try to express my appreciation and gratitude to you and Mr. Foldes for the concise presentation of the article, but your publication has always been tops on my reading list and I have grown to expect these high calibre presentations.

Jack Van Schaick
Adrian, Michigan



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William J. Syzdek

William J. Syzdek was a photo-hobbyist before the war when the Army Air Corps put him to work as an aerial photographer. He has been a professional ever since, and for a time had his own studio in Amsterdam, N.Y. Currently he is a free-lance commercial photographer in New York City.

Mr. Syzdek's article this month came out of the possibilities overlooked in shooting. Instead of the conventional head-and-shoulders method of photography, the author describes and illustrates another approach.

Cropping, as has been observed many times before, frequently makes the picture. Our cover is a case in point. The print reproduced here shows Harold Blackstone's original negative in full and is an interesting but not a spectacular print.

Blackstone experimented with bigger and bigger enlargements of the cat's head, cropping more closely each time until the print we used on our cover resulted. In this, the picture is confined to the absolute essentials necessary for the final effect.

Try cropping one of your negatives down to its essentials and see if you do not thereby come up with a more effective print. Perhaps your results will be as good as the editors consider this example to be.

Tet Arnold von Borsig is known primarily for his photography of works of art, particularly sculpture, and for his

series of Long Island photographs. Here his houses, churchyards and country scenes have caused considerable interest.

Trained as an engineer, German-born von Borsig came to the United States to study manufacturing plants from coast to coast. Back in Germany before World War II he managed to reach the Czech border before Mr. Hitler. Undoubtedly with thanks to this, he is in this country at present. Here, among other things, he had made another series—of tree studies. *AMERICAN PHOTOGRAPHY* is the first publication in the field to have the honor of presenting Tet von Borsig's close-up nature studies.

No stranger to *AMERICAN PHOTOGRAPHY* (some of his material was published here last year), Ormal I. Sprungman is a free-lance photographer and by now, somewhat of an expert on ducks! He spends every summer in Canada as the official movie producer for Ducks Unlimited, and his experience this past summer led to the article in this issue. Mr. Sprungman is the camera editor for *Sports Afield*.

John Nichols, also familiar to our readers, writes another article on definition and negative processing for clarity in photographic work. Mr. Nichols currently is a commercial photographer in New York.

Joseph Foldes this month is concerned with perspective. He has on hand in the next few pages useful examples which will help the photographer to better shape up his pictures.



Blackstone's original cat shot

HIGH SPEED CAMERA MAGNIFIES TIME

Magnifying Time with the Kodak High Speed Camera. 16mm, 15 minutes. Camera Club and School Service. Eastman Kodak Company, Rochester 4, N.Y.

This new film is a graphic demonstration of the ability of a high speed motion camera to magnify time, reports Eastman Kodak.

Proceeding from the statement that time is no longer handmaid to the clock, the film goes on to illustrate some sequences of action ordinarily beyond the scope of the human eye. Every movement involved in an egg's dropping to a frying pan, explosions, implosions of a television tube, for example, have been recorded.

The high speed camera exposes 100 feet of film in 3 seconds, a speed of about 50 miles per hour, and the time is multiplied by a factor of about 200, thus slowing extremely fast action to human level of comprehension.

The film, with its serious implications in many fields of research and study, will be available without charge on loan to interested businesses, industries, organizations and schools.

ONE-MINUTE PICTURES AID FIREFIGHTERS

Success in the use of one-minute Land Polaroid cameras during forest-fire fighting operations has been recently reported by air-borne national foresters. While foresters on the ground are engaged in fire combat, air crews flying small planes scout potential fire outbreaks in the area below and make photographs whenever a tell-tale wisp of smoke is spotted.

Within just a few minutes a photomap with instructions written on the back is soon on its way to the ground crews who will shortly have information as to location of new fires, wind direction, topography, as well as suggested routes of access to the blaze.

In instances when several fires start simultaneously, delays which formerly resulted in full-scale conflagrations can be avoided to a great extent by this photographic technique new to forestry.

KODAK DATA BOOKS AVAILABLE

Color

The four sections of the already familiar *Kodak Color Handbook* will soon be released as separate color data books, Eastman Kodak Company announces. Collectively the books have formed a comprehensive work on still color photography and will still be available in one volume. Individually they will cover the following:

Color as Seen and Photographed. A general discussion of color photography,

background information on color processes and color vision necessary for the serious-minded beginner in the field. 68 pp., \$1.

Color Photography Outdoors. Covers essentials of shooting in color under natural lighting conditions in addition to sections on flash, scenic, illustrative as well as architectural photography. 56 pp., 50 cents.

Color Photography in the Studio. Indoor counterpart to book above. Emphasizes basic lighting techniques that can easily be adapted by photographers to a variety of subject matter. 64 pp., 50 cents.

Kodak Color Films. Summary of information on handling, processing, color balance, use of filters and other such considerations pertinent to Kodak color films. A data sheet for each film for still color photography is included. 60 pp., 50 cents.

Chemical Preparations for Black and White

Priced at 50 cents and available from all Kodak dealers is another data book discussing basic information about nearly 50 preparations for both processing and after-treatment of films, plates and papers used in black and white photography. Advantages of using prepared chemicals rather than compounding one's own formulas are presented and considerable information on the preparation of solutions is given.

Also included are details concerning construction of processing apparatus from storage tanks to pipe lines, racks and hangers to pumps, valves and faucets. Solution storage is discussed and recommendations given in addition to various helpful charts.

H. A. STRONG MEMORIAL FOR FILM COLLECTION

A film collection to be known as the "Henry A. Strong Collection of Historical Motion Pictures" and a new film vault building, "The Henry A. Strong Archives," will be established in Rochester, N.Y. as a result of a \$100,000 gift made to the George Eastman House of Photography by L. Corrin Strong of Washington, D.C.

The fund will be used for the acquisition and preservation of historical motion pictures for study and showing at the Dryden Theatre of Eastman House.

In addition to collecting films, part of the gift will be employed in making copies of films, many of which, processed on early nitrate stock, face possible destruction within the next ten years. The new copies on modern acetate safety stock should last indefinitely with proper care.

Henry Alvah Strong, for whom the memorial has been established, financially aided George Eastman at the outset of his photographic enterprises.

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Notes From A Laboratory

(Continued from page 4)

are expected to use intelligently in order to produce the best results possible.

I know two men who do very nice color work. One uses a speed index of 8; the other uses 16! And both make very good pictures indeed. Why? Simply because each has found that the sum total of all factors involved combine to give the best results when the selected index is used! Neither of them knows where the variations occur. They have simply found from experience that the plan works. They used to argue. Now, however, each has learned that the other's method works for the other if not for himself and they accept it as a more or less mysterious fact.

But neither could have ever made good pictures if he had not been willing to change the official rating. Neither could have made a good picture had he not studied those he had made, and from that study determined the fault. When the error is known, it can easily be corrected.

How does it look?

Is it really possible to tell objectively? Are pictures actually studied enough or are they given only a hasty glance and dismissed with "good enough" or "terrible"? Or, as so many others are self-hypnotized, is it easy to believe that anything turned out is automatically good merely because one has made it himself? If this is the case it probably will be impossible ever to make a good picture. And it is a common fault. The man who is going to make masterpieces is the one who thinks his work is inferior and who is determined to improve it. Can one truly be self-critical? If so, then making good pictures will become more than a probability.

How does it look?

Although one may be self-critical he finds that study of his own work is useless because criteria of quality are lacking. It is perfectly easy for us to set up our own standards? Moreover, these standards can be those which reflect our own taste without losing their value as standards.

Making standards takes will power. It means a deliberate waste of film in making poor exposures. But is it a waste? Suppose we "waste" five dollars worth of film and as a result increase our output of good pictures by 100 percent? How soon will it take to replace the film used? For we will be able to avoid those mistakes which are treble costly because the particular subject cannot be photographed again.

The method I have used to set up such standards follows. A subject of average field distance containing a fairly wide range of natural color is selected. A color chart may be used as a supplementary original but it should not be made the principal color reference. If possible, flowers, as well as some figures for flesh tones, are recommended. There are some dyes used

on charts which film does not record accurately and judgment should be based upon natural coloration.

I made a range of exposures, $\frac{1}{4}$, $\frac{1}{2}$, normal, 2x, 4x and 8x. It is even better, I found, to add $\frac{2}{3}$, $\frac{3}{4}$, $1\frac{1}{2}$ and $2\frac{1}{2}$ to this range. The difference is surprising and not only enables one to make a better selection; it shows the degree of change caused by variations in exposure which would be regarded as insignificant in black and white photography.

Following this I made another series which took some time. A park scene or the open countryside is an excellent setting, with one or more figures as the principal objects. I made one exposure under average morning sun (afternoon may be used, too), using the exposure determined by the first experimental series. Following this, shots were made in the early morning, at high noon and late in the evening.

When making the first shot it is well to make another with the figure standing in the shadow cast by a tree or tall building. Another shot should be made with the shadow of a limb falling across the face of one of the models. It is a good idea to make at least two shots of a flower bed in sun and shadow both. Exposures should be made on sunny days and under various storm conditions as well.

Now these pictures are to be studied. How do they look? Do they truly reflect the conditions? Do the shadow pictures look like a shadow on a sunny day? Do the stormy day pictures look like a stormy day?

An accurate record must be kept and the pictures closely analyzed. While they do have a certain resemblance to actual conditions, the effects will be found to be exaggerated. Simple shadow pictures will look almost like the original stormy day. This is because where eyes accommodate to conditions just as they do to yellow light, film records all color in reference to its basic color sensitivity.

The last series is one of elementary color control. You who read this column regularly know that I am strongly in favor of complete color control. I would not go out without my color meter any more than I would leave my exposure meter behind.

However, many find it too much trouble to carry a kit of color compensators in addition to other gear. One can still enjoy a certain amount of color correction based upon rule-of-thumb procedure. A pair of compensators, one "warm," the other "cool," is a worthwhile purchase. Doubtless more use will be found for the "warm" filter. The poses formerly made in sunlight and shadow should be repeated when these filters are used. This time,

two exposures should be made in the sun, one with the normal compensation filter (if one is used, such as the compensator for Type A film in daylight). Then a shot is to be made with the "cool" filter added. Finally two shots of the shadow position, one normal and the other with the "warm" filter, complete the series.

Because so many people use Type A for all shots and use a compensator for daylight, I would suggest that instead of the normal warm and cool filter, special compensators be used—one a warmer than normal compensator, the other cooler—thus avoiding the use of two filters. Ordinarily I use an H & H C-2 for the cool and a C-6 for the warm, with a C-3 or C-4 as normal, depending upon the season and the subject.

You will no doubt find that the shadow picture made with the warm filter is much better than the normally filtered one, while the sunlight picture made with the cool filter may be worse than normal by introducing a slight blue-green tone, or it may be better because it eliminates a part of the reddish-dun coloration which is not at all uncommon. You will have to develop a certain sense of color value to use such filters without a color meter but it can be done. Once the use of these two compensators is learned in addition to the normal one, the improvement in color pictures will be so great that the slight trouble involved in learning how will be insignificant.

Suppose that in all we "waste" 25 or 30 exposures. Suppose we spend five dollars or a bit more. Can we purchase as much satisfaction as cheaply in any other way? I think not.

Photography is essentially a most critical process and the fact that it has been brought to the place where everyone can use it to advantage is a great tribute to the researchers and manufacturers who have spent millions to standardize and simplify it. There is, however, a point beyond which personal responsibility must be assumed. That point marks the boundary between casual snapshots of indifferent quality and really good photographs.

To assume this responsibility is not a matter of sitting in an easy chair and reading endless books devoted to technique. All of us can learn more by 20 hours of concentrated experiments with camera and film than by reading for 20 months or 20 years if no experience is added to the reading! The one and only way to learn to make photographs is to make photographs. Rapidity of advance will be largely determined by the care with which records of exposures are kept and the amount of study devoted to the finished picture in the light of these exposure records. The appearance of the finished picture will tell the story and we can ask ourselves: How does it look?



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Over 3000 educational films are listed and described in the 1952 catalog issued by the Audio-Visual Center of Indiana University. The films are listed both alphabetically and by subject matter.

The catalog will provide interested film users with a convenient source of information for selecting material as well as with the names of the distributors. The Center itself is currently distributing over 13,000 prints of the films listed. The catalog is available for 85 cents from the Center, Bloomington, Ind.

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Photo courtesy Chicago Tribune

Harold Revoir's winning shot, "Whew"

EDWARD SCOTT BECK AWARD

The annual \$500 award in memory of Chicago Tribune photographer Edward Scott Beck, was named for 1951 to Tribune photographer Harold Revoir, a member of the paper for 19 years.

Revoir's winning shot, "Whew," climaxed a series of photographs of the hatching of a baby chick at the International Harvester farm exhibit in the Museum of Science and Industry. After a three hour wait Revoir was able to catch the chick at the exact moment it broke through its shell. He used type B press film in a Speed Graphic, f/22 at 1/400.

The Illinois Associated Press Contest awarded the picture first prize in its feature division, October, 1951.

Edward Scott Beck was associated with the Tribune 45 years before his death on Christmas Day, 1942, and was managing editor of the paper for 27 years. The Beck award foundation, established in 1943 by Mrs. Clare B. Beck, provides \$500 prizes annually for the best news story abroad, the best domestic news story and the best photograph by Tribune staff members.

Jury on the Revoir award was composed of the paper's managing, city and news editors.

CAMERA USED IN DISEASE STUDY

Rare tropical diseases of the eye early this year were photographed by specialists at the Pan-American Congress of Ophthalmology at the University of Mexico, it is reported.

A special high speed retinal camera developed by Bausch & Lomb photographed both in color and black-and-white the interior of eyes diseased with complicated tropical infections heretofore never recorded in this way. Resulting photographs are capable of being enlarged many times or projected on a screen. The process signifies an important step forward for this phase of medicine in both practice and teaching.

NEW FILMSTRIPS RELEASED

The Society for Visual Education, Inc., announces the addition of four new filmstrips to its library. *Phonics: A Key to Better Reading* is a series of six full-color filmstrips designed for primary through junior high schools and consists of *Let's Start With Key Words, Make Words Work for You, Your Eyes and Ears Are Good Helpers, Vowel Sounds Help You, Test Yourself on Sound and Help Yourself Read*. Captioned drawings in the film explain word sounds as well as offer exercises to those children having reading difficulties. Individual titles are priced at \$5; set of six, \$28.50.

Alice and Jerry Reading Series—Second Grade Set. Designed to correlate with the *Alice and Jerry Readers* (Row, Peterson & Co.), the second grade set ties in with the text, *The New, Friendly Village*, and is an aid in word recognition at that age level. Titles, listed at \$3, include *On the Sandy Shore, On the Mountains, On the Great Plains, A Summer in the South and Navaho Indians*.

Plants, Animals and Insects, a set of full-color filmstrips, was made from scientific drawings and photographs and was prepared in conjunction with Row, Peterson & Co. and their text, *Basic Science Unitexts*. The series is aimed at intermediate through junior high school level. The films, available at \$7 each, consist of *Living Things, Telling Trees Apart, Seeds and Seed Travels and Insects and Their Ways*.

Child Care. This is a set of four black and white films: *Enter the Baby Sitter, The Certified Baby Sitter, Physical and Emotional Values of Breast Feeding and Comfort and Satisfaction in Bottle Feeding*. The material for this series was prepared by the Baby Development Clinic of Chicago and is recommended especially for junior high school through college levels, health departments, P.T.A.'s and women's clubs. Titles are listed at \$3 each.

The Society for Visual Education's filmstrips are available either through the S.V.E. dealer organization or by writing directly to the Society at 1345 Diversey Parkway, Chicago 14, Illinois.

PHOTOGRAPHIC SHOW SCHEDULED IN N.Y.

To Emphasize Education In Photography

The sixth annual National Photographic Show, this year emphasizing education in photography, will be open from Thursday, February 21 to Sunday, February 24 at the 71st Regiment Armory, 34th St. and Park Ave., New York City, 11 a.m. to 10 p.m. daily.

Biggest event of the year in amateur photography (last year over 35,000 camera enthusiasts put in an appearance), the show will include a showing of more than 500 prints from the New York Press Photographers Association, and project for the first time the work of prominent newsreel and TV cameramen.

In presenting educational aspects of photography, instruction will be directed to different levels in the field: while experts demonstrate various equipment, continuously-open instruction centers plan to feature such phases as darkroom work, still and flash photography, lighting and motion picture techniques. In addition, a special center will specialize in color photography.

More than 110 manufacturers are expected to display equipment and materials at the show and an extensive entertainment program has been planned.

Tickets will be available at \$1 at the Armory during the show as well as from many camera stores in the metropolitan New York area. Schools may apply for special teenage admission rates.

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NEW RESOLVING POWER TEST CHART

THE RESOLVING POWER of photographic lenses can now be more effectively measured and studied by means of a variable-contrast test chart recently developed by I. C. Gardner, F. E. Washer, and F. W. Rosberry of the National Bureau of Standards. The new chart enables the user to obtain in a single photograph a complete record of the resolution characteristics of a lens for any value of target contrast in the range from 0.0 to 1.5. Resolving power can thus be measured for both high and low contrast without changing experimental conditions and the relationship between resolving power and contrast can be systematically investigated. Although the chart was developed primarily to measure the characteristics of aerial mapping cameras, it should be of value to makers and users of all types of photographic equipment.

Requirements for aerial camera lenses are very exacting; the lens must have good resolving power and little or no distortion over the entire field. As a result of research conducted by the National Bureau of Standards since World War I, largely for the military services, precise methods for measuring and specifying distortion and focal length have been developed. Determination of resolving power, however, has remained something of a problem.

The method now in general use for designating the resolving power of a photographic lens is based on an evaluation of the image the lens forms of a high-contrast resolution chart. This chart contains patterns of parallel lines having various spacings. As the contrast between lines and spaces is higher than that usually found in natural objects, it has been suggested that a test made with this chart may not be applicable to the conditions under which the camera is used. The Bureau therefore undertook to develop a test chart that would simultaneously measure the resolving power of a lens and show the variation of resolving power with contrast. The resulting chart has been found very successful in application and is being recommended for adoption as an international standard.

The new test chart consists of a series of long parallel lines so arranged that the widths of successive lines and of the spaces separating them progressively decrease. The "instantaneous" value of the number of lines per millimeter is a linear function of the distance from the first, or broadest, line. At the same time, the transmittance of the lines and spaces varies from end to end in such a way that the contrast at any place in the chart is a linear function of the distance, measured parallel to the lines, from one edge of the chart; and the transmittance of the chart averaged over

an area embracing several pairs of lines and spaces is uniform for the entire chart. The long lines of the chart make it especially suitable for microphotometric examination of the final test images, thus making possible a more objective determination of resolving power.

Two steps are involved in making the National Bureau of Standards chart. First, to insure a continuous variation in contrast, a negative of the high-contrast master chart is contact-printed onto a photographic plate while the exposure time is varied over the plate in a predetermined manner. In the second step, the high-contrast chart is removed, and the photographic plate is again exposed in such a manner that the transmittance averaged over several lines of the finished negative is a constant.

To carry out this two-step process, a device was constructed in which a motor moves a specially shaped diaphragm across the partially exposed plate at constant speed. The photographic plate is placed in the holder of the device, emulsion side up, and the master high-contrast negative is placed over it. A small light source is located about eight feet above the travelling diaphragm. After the diaphragm has traversed the plate once, the high-contrast negative is removed, the photographic plate is turned through 180°, and the diaphragm is again made to traverse the plate at constant speed. The double-exposed plate is then processed and the finished negative is the final variable-contrast chart.

This chart is illuminated and used as a "target" for image formation by the lens under test. Information on resolving power can then be obtained from measurements made on a photograph of the image thus formed.

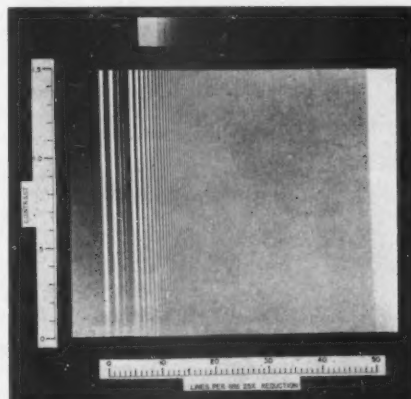
As the chart is constructed, the contrast is approximately constant along any line

drawn perpendicular to the lines and spaces of the chart. However, the variation in contrast in the photograph of the image will ordinarily be somewhat different from the variation in contrast in the target. In both cases the contrast progressively decreases along any one of the dark lines, but in the image the rate of decrease will be greater along some of the lines than along others. Any decrease in contrast may be the result of the particular combination of lens and photographic emulsion used.

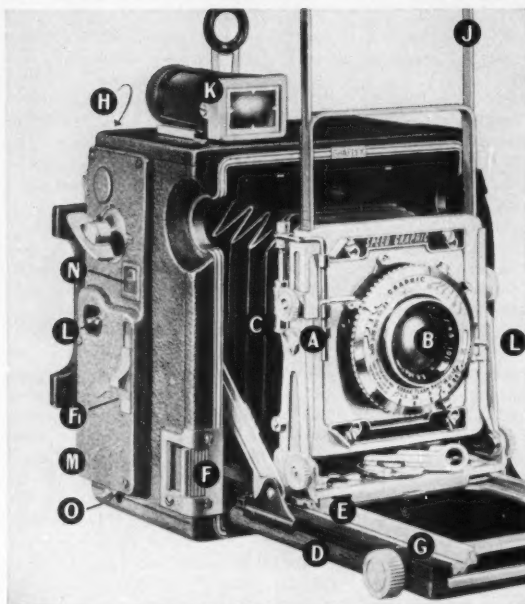
Ideally, it should be possible to obtain the maximum resolving power of the lens under test by determining the line frequency at which the contrast in the image of the target becomes zero. However, at the present stage of the development, local irregularities in the image make it impossible to state with certainty just when the contrast in the image reaches zero. For this reason, the performance of a lens is reported in terms of the resolving power, or line frequency as read from the chart, for a selected value of contrast in the image, a specified value of contrast in the target, and a specified type of photographic emulsion. It is believed that the new test chart will prove extremely useful for studying the manner in which contrast in the image is affected by contrast in the object, lens action, and granularity of emulsions.

In the course of the investigation, striking examples of "false resolving power" were found when the original high-contrast master chart was used as a target. It was discovered that this effect was caused by overlapping of the out-of-focus images of elements of the target. In testing lenses, the possibility of such spurious resolution should not be overlooked. Because of the curvature of the field, some portion of the photographic plate is almost sure to be out of focus.

This new variable-contrast resolving power chart was recently developed by the National Bureau of Standards for testing and evaluating photographic lenses. The photograph of this chart made by the lens in question gives a complete record of its resolution characteristics. (It will be interesting to readers to note the "resolution characteristics" of high quality engraving used to reproduce this chart. Many of the lines are lost, of course, and the effect is aggravated by the fact that it is reproduced smaller than the original.)



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THE PRACTICAL USE OF PERSPECTIVE

*Text and photographs
by Joseph Foldes*

A much misunderstood subject is explained by an expert so that you can put it to work to improve your own photographic work easily and immediately.



The converging lines of this arcade, leading to the same point, illustrate a common type of introducing depth into a picture.

1

THE SCENES and objects we see around us are all three-dimensional: they have height, width and depth. The photographic print, on the other hand, is a plane. It has but two dimensions: height and width. Logically it follows that the scenes and objects presented on photographs should also become two-dimensional; they also should have only height and width, but no depth. Actually of course this is true. However, when we look at a photograph most of the time we have the *illusion* of depth. The objects on the picture *seem* to be three-dimensional. The phenomenon which creates this illusion of three-dimensionality in the two-dimensional plane of a picture is *perspective*.

"Now," you may say, "if this is so why bother with perspective at all? Let the camera take care of it." Yes, but *you* handle the camera and the *way* you handle it may make the difference between a flat looking picture and one having a three-dimensional effect, the illusion of space.

Fortunately we can neglect most of the problems of perspective which are treated in the many books written about it. We will concern ourselves with only one phase: the *practical* angle. How can we use perspective to improve our pictures?

This question is two-fold. First, how can we get the illusion of three dimensions, the illusion of space in our pictures? Second, what else can we do with the planned use of perspective?

In photography we have the following six different means of creating an illusion of space in our two-dimensional pictures. While each of them can serve this purpose alone, usually a combination of several gives the best results.

1. Converging Parallels. If lines, parallel in reality, appear to be converging in our picture, they will give to it a feeling of depth and distance. We are all familiar with scenes where railroad tracks, fences, poles, etc., all recede to a common vanishing point in the distance. In Figure 1 the parallel lines of floor and ceiling of the arcade appear to be converging, thus lending the picture an effect of great depth.

2. Diminishing Size. An effect of space will result when objects which we know to be of the same size appear on our picture in diminishing sizes. Figure 2 is a good example. We know that most cars are approximately the same size. The cars here, however, are shown as tiny resulting in an appearance of space and distance in the picture.



2



4

Diminishing size of objects which we know are actually the same size, as in 2 and 3, are clues to depth in a picture. Flat, unshadowed lighting loses depth; contrast the effect in 4 and in 5 where the sidelighting accentuates depth. This same effect is visible in 6 where the shadows in the picture frames is a clue to their depth. Comparative scale, as in 7, is also a factor in perspective, since we know the real sizes of the cars and houses shown. Atmosphere also provides perspective as shown in 8 where objects lose clarity as they recede.



3

PERSPECTIVE

In Figure 3 we have two lions. One is much smaller in size which pushes it into the background although there is no indication of its position in the picture. Looking at the picture we have the illusion that the larger lion is close to us while the smaller one is further away.

3. Lighting. One of the controlling factors in perspective is lighting. Flat lighting either from camera position or behind the camera has a tendency to destroy the feeling of depth in the original scene and in the photograph. Sidelighting or backlighting, on the other hand, produce highlights and shadows which give depth.

In Figure 4, taken on a cloudy day, the lighting is flat. While the picture is pleasing it has no depth or three-dimensionality. Figure 5 shows the same girl at the same place in an almost identical pose. However, because she is sidelighted in this picture a three-dimensional effect has been created.

Sidelighting also produces the three-dimensional result in Figure 6 where the depth of the picture frames is entirely realistic.

4. Scale by Comparison. When we know the size of a subject which appears in our photograph we will use



5

6



its apparent size in the picture to judge its relative position. Figure 7 is an example. It shows people walking and cars driving, on Daytona Beach in Florida. The people, cars and even houses appear to be very small, thus giving both depth and distance to the picture. By including people in Figure 8 we again have increased the illusion of depth. The very smallness of the figures indicates distance. Cover up the small figures with your fingers and notice how, as the background seems to come forward, the illusion of depth is partially lost.

5. Atmosphere. When we view the original scene we



8

7



notice that changes in tone values frequently occur in the distance. Usually these changes are due to atmospheric conditions such as haze and smoke. Objects appear lighter and less contrasty in tone the further away they are from either camera or observer. Darkness, suggesting nearness, and lightness, distance, together create the illusion of depth and space.

The scene in Figure 9 conveys the feeling of space, an effect created by the haze over distant mountains.

6. Limited Depth of Field. An illusion of depth can be created in a photograph by letting the background



Atmosphere and the haziness of distance help render the effect of distance on the flat plane of a photographic print.

PERSPECTIVE

go out of focus. As an unsharp background will appear to recede, it will push the sharp part of the picture forward.

Such an illusion of depth as in Figure 10 is suggested by such an out of focus background. None of the preceding five factors is present. If the background were sharp this photograph would lack the effect of depth which it now has. Several factors add to the illusion of space and distance. An out-of-focus background is only one of them. Sidelighting and scale by comparison (the small figures in the background) also contribute to make the illusion.

If you become familiar with the six factors listed above you will have no trouble in making pictures having a three-dimensional effect as well as an illusion of depth and space. Of course, simply reading about it will not

A limited depth of field sometimes adds greatly to the illusion of depth. A sharp background here would not only be obtrusive, it would make the picture seem shallower.



automatically produce successful pictures. Descriptions and illustrations of the six factors must be studied and memorized. They must become part of your photographic technique. When you think that you have sufficiently familiarized yourself with the six factors, analyze the six illustrations, Figures 11 to 16. Do they have good depth, good three-dimensional effect or not? If they have, which factors are present to help in achieving that effect? First give your own answers, then compare them with the following:

Figure 11. The picture has good depth resulting from converging parallels (stairs in right foreground, rows of buildings in left background), diminishing size and scale by comparison (human figures) and atmosphere (distant haze).

9 Figure 12. Reasonably good depth results from diminishing size and scale by comparison (trees and human figures). Limited depth of field also contributes toward that effect.

Figure 13. Good depth is the result of converging parallels (sides of bus) and diminishing size (heads).

Figure 14. Good feeling of space achieved by backlighting and scale by comparison. Here the human figures and the lamp in the foreground are compared with the mountains in the background. The relatively small size of the mountains pushes them back into the distance. Cover the figures and the lamp with your hand to see decrease in depth and distance.

Figure 15 has no depth whatsoever. Not one of the factors is present in this picture.

Figure 16. Good three-dimensional effect results from sidelighting and limited depth of field.

Making realistic photographs is another practical application of perspective. Realistic photography implies that we attempt to get a perspective in our pictures similar to that which our eyes see. To do that is rather simple: when we photograph our subject from a distance with a leveled camera the resulting picture will be similar to what our eyes see. There is no definite rule to tell us how far the camera should be from the subject for any one picture. As a rough guide we may say that the distance between subject and camera should not be less than eight times the greatest dimension of the subject being photographed. For instance, a human head which is two feet high (including a small part of the body) should be photographed with the camera at least 16 feet away from it in order to get a realistic perspective.

We repeat, this is just a rough guide. Experience will teach you to select the proper distance between camera and subject for each type of subject you take. By a leveled camera we meant that *it should not be tilted* in any direction.

The next question, is realistic perspective necessary? Should our photographs be similar to what our eyes see? There is no single answer to these questions. It is entirely up to you as a creative photographer to decide for yourself what you want your pictures to look like.



11

We have told you how to get a realistic perspective if that is what is desired, but we can't (and wouldn't) tell you that your photographs should always have a realistic perspective.

We also told you how to get depth in your pictures by the application of one or more of the six factors. You can also avoid getting depth if you so choose by eliminating all the factors from your picture. Again, the choice is yours.

Any photograph inevitably has some sort of perspective. Although it sometimes will be entirely "crazy" and unorthodox, still it will be perspective because, generally speaking, perspective merely means presenting three-dimensional objects on a two-dimensional surface—the photographic print in our case.

The most important thing in a picture is its effect: does it or doesn't it have the effect you wanted to es-



12

Test the feeling of depth in the photographs reproduced on this page. Perspective, the author says, is created by converging parallels, by diminishing size, by direction of lighting, by scale of comparison, by atmosphere and by the depth of field. Check these factors in each of these prints and decide whether



13



14

the author has utilized them to increase or to decrease the apparent depth of the picture. It is not always necessary to make a picture "deep", some are better if they are completely without depth, but the maker should be in control.



16



15

19



17

There are different "perspectives" depending on our point of view. This, with the vertical lines apparently converging is just as real as one which has been subjected to camera corrections so that the vertical lines seem to remain parallel as they rise.

PERSPECTIVE

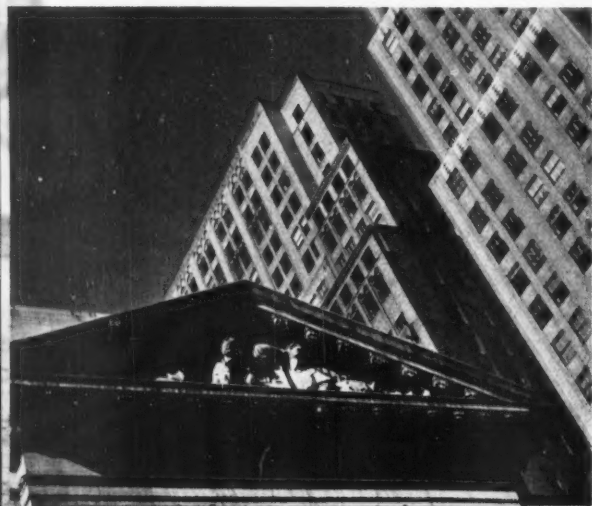
establish? Control of perspective often helps to get certain effects; other times the complete disregard of realistic or natural perspective achieves the desired result.

Figures 17 and 18 are examples of this. Figure 17 is a picture of New York City's R.C.A. Building taken from an unusual angle. The camera was tilted sharply upward resulting in the lines of the building converging. The perspective is unorthodox yet the picture is good and, most important, it looks exactly as we wanted it to look.

Figure 18 shows how an entirely "crazy" perspective can result in an interesting picture.

In summing up we can say that in average work a perspective giving the illusion of space and depth will improve our pictures. Sometimes it is desirable to use a perspective which represents the subject as the eyes see it. But of utmost importance, the perspective used

Realistic perspective is not always necessary or useful. Here "distorted" perspective is caused by tilting the camera upward.



18

Perspective depends upon the position of the camera, not on the focal length of the lens. 19, short lens, close to fire house; 20, short lens, further back; 21, long lens from back position; 22, same as 20 enlarged for same size image.



19

in any one picture should produce the exact image which the photographer wanted to make.

There are just two more points to be cleared up. First, in contradiction to popular belief, there is only one factor which controls perspective: the *position of the camera*. The lens, its focal length, the type or size of camera used are *not* factors in perspective control. Lenses of different focal length will produce images of different *size* on the negative, but the perspective will remain the same as long as the position of the camera is not changed. There are cameras with adjustments to control perspective, but because using these adjustments actually means changing the position of the camera we disregard them here.

The fact remains that any two cameras in the same position will take pictures having identical perspective. Any change in the camera position will change the perspective. Figures 19 to 22 are examples of this.

Figure 19 is a picture of an old fireboat station in Brooklyn. The Woolworth Building can be seen across the river. This picture was taken with a lens of short focal length. The camera was close to the building in the foreground and the fireboat station house fills up the full length of the negative. For Figure 20 the camera was moved back and another picture taken, still using the same short focus lens. The building is smaller on the negative and more of the surroundings are included. *The perspective has changed as a result of the change in camera position. Note the difference in relative size between the fireboat station house and the distant Woolworth Building.*

Next we changed the camera lens to one of the longer focal length and took another shot *with the camera in the same position*. The result, Figure 21, is a *larger image* due to lens of longer focal length. Yet *the perspective is entirely unchanged* because the camera position was not changed in any way. This is easy to prove if we take the negative of Figure 20 and enlarge it to the size of Figure 21. The perspective of the two should match since both were taken with the camera in the same position



20



21



22

although with lenses of different focal length. We have made this enlargement (Figure 22) and its perspective exactly matches that of Figure 21. This should suffice to prove that, as we mentioned before, perspective is controlled solely by camera position, not by the lens or its focal length.

The second—and very important—thing to be mentioned is the position from which the observer views the picture. The effect of a photograph is greatly influenced by the position and distance from which it is viewed. A picture which has the proper effect when viewed correctly will look quite different and probably wrong when viewed incorrectly. This is a little-known fact and even those who know it neglect it most of the time.

First of all the picture being viewed should be held at right angles to the visual axis of the viewer. In other words pictures should never be viewed at an angle. If for some reason pictures are placed high or low they should be tilted forward or backward so that the eyes of the onlooker will meet it at a right angle.

Contact prints should be viewed from a distance equaling the focal length of the lens with which it was taken. For instance, a contact print made from a negative which was taken with a lens of 12-inch focal length should be viewed from a distance of 12 inches. When this is done the picture will appear to the viewer exactly as the original scene appeared to the photographer when he took the picture. The perspective will be natural and the depth and three-dimensional effect of the picture most noticeable.

Small contact prints, taken with lenses of short focal length, cannot be conveniently viewed from the required short distance. Therefore, small contact prints always show distorted perspective when viewed from the regular reading distances. This can be corrected with the use of a magnifying lens which will enable the viewer to hold the contact print close, at approximately the distance of the focal length of the lens. It is for this reason that small contact prints (or color transparencies) appear to

become almost three-dimensional through a magnifying glass.

The correct viewing distance for any enlargement is *focal length of camera lens multiplied by the diameters of enlargement*. This means it is necessary to measure how many times (diameters) a negative (or any portion of it) has been enlarged and to multiply that with the focal length of the camera lens to get the correct viewing distance. The same measuring unit must always be used. If the focal length of the lens is given in centimeters or millimeters then the resulting viewing distance is also given in centimeters or millimeters. If the focal length is given in inches, then it follows that the viewing distance is given in inches. The units can be converted if desired by the formula: 2.54 centimeters or 25.4 millimeters equal one inch.

For example, a full 4x5 negative taken with a 10-inch lens is enlarged to 8x10. This means a two diameter enlargement. Thus, 2×10 (focal length of lens) = 20 inches. The correct viewing distance for that print will be 20 inches.

Another example: a two-inch high portion of a Rolleiflex negative is enlarged to an 11x14 print. It is a x7 enlargement (2 inches to 14 inches). The focal length of the camera lens is 75 millimeters. $75 \times 7 = 425$ millimeters or roughly 16 inches.

The correct viewing distance is so important in making the viewer see the proper perspective that actually all photographs should bear such a remark as, "To be viewed from such and such a distance."

Pictures taken with lenses of extremely short focal length (wide angle shots) or extremely long focal length (telephoto shots) usually cannot be conveniently viewed from the distance figured out according to the formula. As a result the viewer will see an exaggerated perspective, otherwise he would not have used a lens of extremely short or long focal length for taking the picture.

Figures 23 and 24 show the same picture in two different sizes. You will notice that viewed from proper distance (about 16 inches) the larger print has a natural

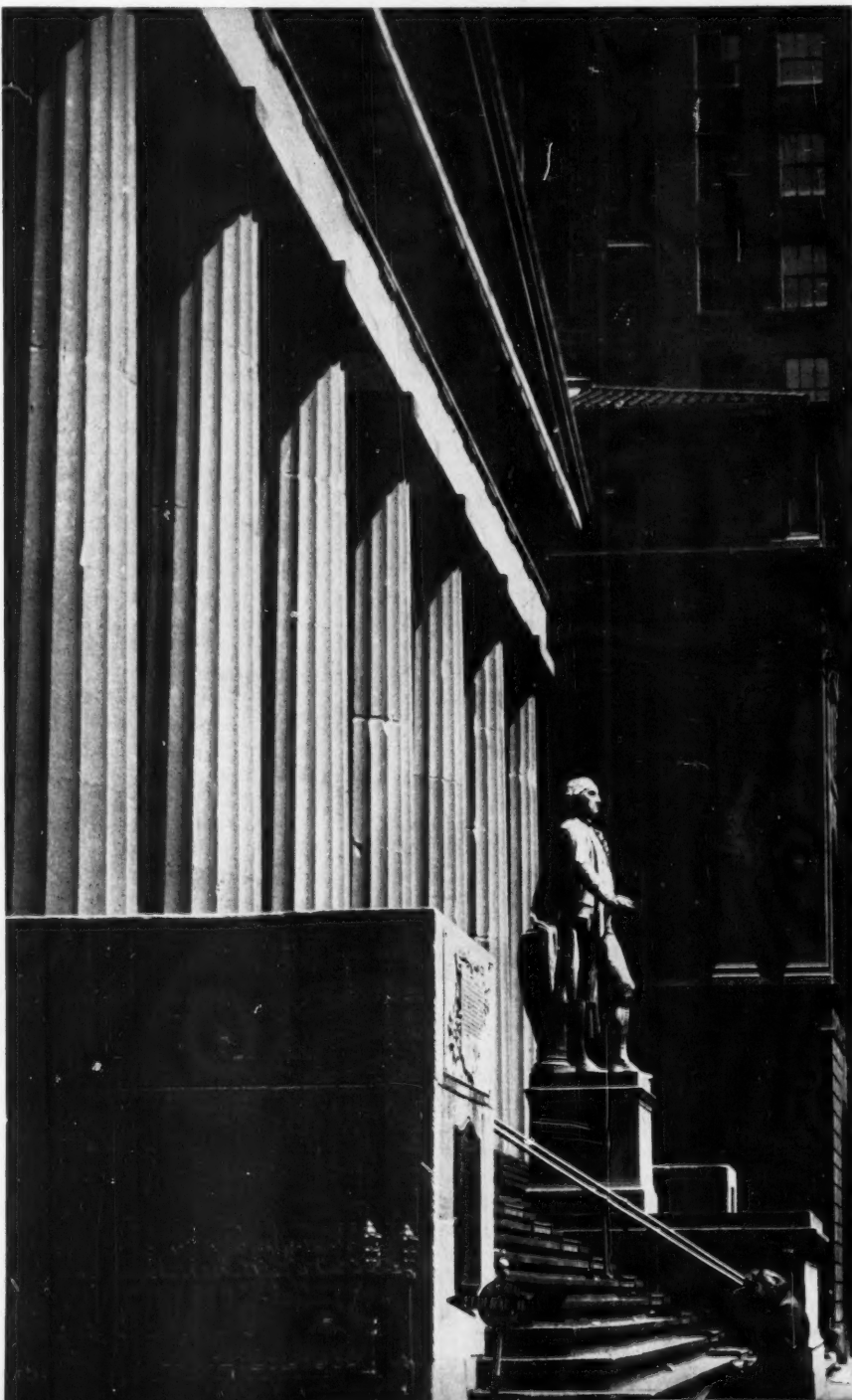
PERSPECTIVE

quality while the small print, viewed from the same distance, shows an exaggerated perspective.

By now you should have a pretty clear idea of the importance and of the workings of perspective in photography. Of course we all must realize that there is much more to it than has been included in this discussion. We

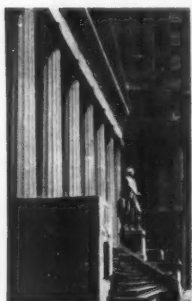
wanted to establish the importance of perspective in photographic work and to give *practical* information regarding its use. If these explanations and illustrations are studied and put into practice, your own work will improve greatly. You will take better pictures, which was our purpose in the first place.

23



Viewing distance is vital for correct perspective. The large print should be viewed from about 16 inches if it is to appear as the

24



camera saw it. The small print, about contact size, would have to be viewed from about $4\frac{1}{2}$ inches for the same perspective.

ONE MODEL IS ALL YOU NEED

A portfolio by William J. Syzdek



IN A SHOOTING SESSION, many photographers run out of ideas before they run out of time. They shoot the model's face, perhaps some three-quarter-length or full figure shots then find themselves stumped for ideas.

William J. Syzdek, who made the pictures on this and the following pages is not that kind of photographer. When he made this series of dancer Rita Willoughby he saw in her much more than the obvious. Her hands, her

feet in ballet slippers, the flowers used as props, the background screen, all provided themes for pictures which might be overlooked.

The possibilities, Syzdek found, were so interesting that the usual negatives were eclipsed in interest and the "figures without faces" carried much more impact.

The graceful hands above are quite as effective as would be a picture including the whole figure. It tells as



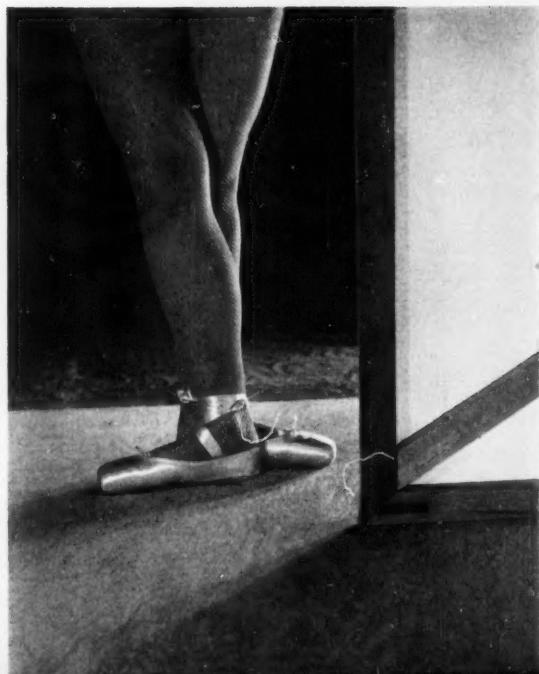
ONE MODEL IS ALL YOU NEED

complete a story and tells it more quickly. Note, too, how well each picture is organized so that the eye remains within the picture, alights on the center of interest, explores the other details and is led back to the important element again.

At the right, the detail of the screen is enough to suggest the whole backstage atmosphere of the ballet while across the page the baroque frame suggests the whole Alice-Through-the-Looking-Glass fantasy of ballet performances.

In these pictures, Syzdek is suggesting more to the viewer than could be spelled out with confusing detail within the print itself. The dark backgrounds add to this effect, for each spectator can supply the needed detail from his own imagination. This is one of the tests of art, that the artist leave some of the work to the spectator and not do all of the telling himself.

To achieve these effects, Syzdek used an 8x10 Deardorff (with a 5x7 reducing back) with a 14-inch Commercial Ektar lens. The set-ups were illuminated with two





ONE MODEL IS ALL YOU NEED





or three flood lights and the Super-XX film was exposed at 1/10, usually at f/11. He used DK-50 as developer and printed on double-weight glossy paper.

Some credit, of course, belongs to graceful Rita Wiloughby, the model for these pictures. Cooperation between model and photographer is essential for effective studio pictures and her training has made her ideal for working with a sensitive photographer. She has studied under Ballanchine at the School of American Ballet in New York and has operated her own teaching studio in Amsterdam, N.Y., since the age of 15.

The two prints at the bottom of page 28 are the only



ONE MODEL IS ALL YOU NEED





examples of darkroom manipulation in this series of pictures. One is, of course, a straight print, the other the result of making a diapositive (a positive image on film) and printing it to obtain a negative image on paper. The effect is to heighten the fantasy quality of the ballet images.

This series should be suggestive to many photogra-

phers who have the opportunity for a shooting session with a model, whether she be a professional or just an acquaintance. After the usual head-and-shoulder poses are made, use the hands as subjects in themselves or move in for more interesting and story-telling close-ups. The results may well be more interesting than the more conventional pictures.

ELECTRONIC FLASH FOR WEDDINGS

SPEEDLIGHT



ANDREW F. HENNINGER expands his column to tell how weddings may be effectively covered with a hand camera and electronic flash. Pictures with Rolleiflex and a 110-watt speedlight.



Photos by Andrew F. Henninger

All prints were made with an automatic Rolleiflex and 110 watt-second speedlight. This picture ("Here goes") and that on page 33 were made with one light attached to the camera; all others, two lights.

Kindly provide complete information concerning the practicability and use of electronic flash for wedding photography. Any additional comments will be appreciated, especially those on the type of equipment best suited for this work, the kind of pictures most salable, sizes and prices.

M. L. Pittsburgh, Pa.

Speedlight is not only immensely practicable for wedding photography, but it is also almost indispensable for convenience, best-quality work and economy. A conversation with almost any one of the thousands of wedding photographers using this equipment will confirm this point.

Flash illumination of some type is essential for the majority of pictures taken at weddings. The use of speedlight provides the convenience of not having to replace bulbs or dispose of used ones. By leaving the charging switch in "on" position, the user may take a rapid series of shots when necessary, the automatic operation of the speedlight permitting full attention to camera and subject. This "repeating flashbulb" effect of speedlight is undeniably convenient in instances like this.

Cameras most widely used are 4x5, 2¼x2¼ and 35mm. The smaller sizes are increasing in popularity because of lighter weight, convenience of operation, the large number of exposures available on each roll of film and, of course, lower negative cost. Album-sized prints are tremendously popular, many hundreds frequently being sold after an average-sized wedding. The smaller negatives are readily enlarged to 4x5, 5x7, or 8x10 and are supplied to customers in both loose and album-mounted form.

A small dry mounting press is handy for mounting the trimmed prints to the album pages. It is also used to mount larger prints back to back. The edges are then perforated or the prints are inserted in plastic binders to make complete album pages.

Occasionally 11x14 or 14x17 prints are required. These command a premium price and are given the works as far as extra attention is concerned. Dodge and burn in where needed and give two-tray hypo treatment and extra washing care to insure maximum life. An over-

White clothing must be photographed in such a way as to bring out detail without creating a chalky effect. "Before" shots are as important as "after," and it is desirable to get at least one of the bride alone.



all potassium ferricyanide treatment will pep up the highlights appreciably. Careful spotting is of course a requisite before the prints are trimmed and mounted on standard 16x20 salon mounts.

Color transparencies are frequently requested in the 35mm size, suitable for projection. Sales of stereo shots and viewers are often made, and this medium is becoming increasingly popular.

Daylight color film should be used with speedlight. Very seldom will an emulsion number be encountered which requires the use of compensating filters to correct the color balance.

A high power portable speedlight is considered the best equipment for wedding photography. Plenty of punch is needed for the color shots and for black and white work in large rooms with walls of low reflectivity. Lots of flashes from one battery charge is one of the special requirements called for in the speedlight equipment to be used for this work. If the speedlight will not provide the several hundred flashes that may be required, interchangeable batteries may be the best solution to this problem. One set may be put on charge in a location where you are working or will later return to. A device for charging batteries in a car was described in the November, 1951, issue of *AMERICAN PHOTOGRAPHY*. This arrangement is quite handy for pepping up the batteries on trips between bride's home, church and reception.

Before going on your first assignment with a new speedlight, make test exposures under nearly the same conditions that will be encountered on the job. Try test shots one stop larger and one stop smaller than the estimated correct exposure to find which method produces a negative best suited for the enlarging equipment to be used. When making these tests, be sure to allow full recharging time for the unit so that an equal amount of light is provided for each of the shots.

To work with a high degree of exactitude, get a couple to act as models—she in light clothing, he in dark. Test the guide number you have previously established at different distances. All should be good when enlarged on No. 2 paper. If a slight change in exposure is required

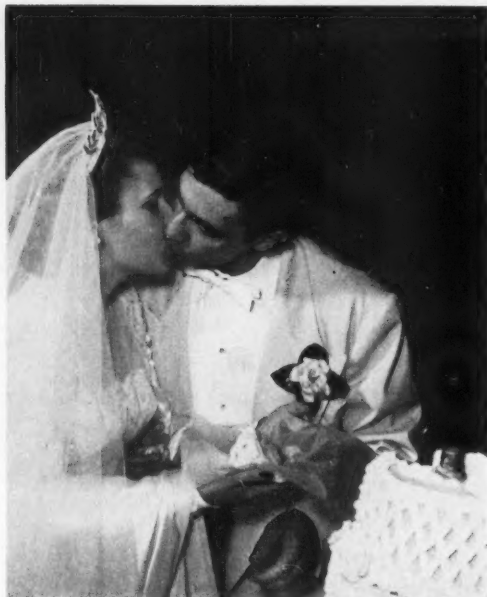
to give best possible print quality, the modification may be made on the job. The white clothing should show good detail without chalkiness and the dark clothing should also bring out adequate detail. The ability to handle these two extremes is an example of the versatility of speedlight and most should be made of this special characteristic. When a guide number is established, it is a good plan to stick to the same combination of film, developer, development time, enlarging equipment and paper.

In different locations some variations will be encountered in the reflective qualities of the surroundings. Alertness in mentally cataloging the reflectivity of walls and ceiling and also the size of the room and in changing the diaphragm setting accordingly will result in negatives having a remarkable degree of uniformity.

The prints you provide are very important to the subjects, their relatives and friends. Make sure you give them the best work you can turn out. Remember too, the bride probably has friends near her age. They may phone about another wedding job in the near future. Every print delivered will be closely scanned, perhaps by dozens of people. If the work is really good, your first wedding job can snowball into several others and they, in turn, into many more.

Weddings and receptions may vary in the number of people involved. Therefore, the number of exposures required will range from about 50 for the smaller wedding, upwards to around 500. Take plenty of film. It is a more common occurrence to run out when most needed than to have an excess.

Alertness is a must in order to catch such pictures as those below. The wedding photographer not only should supply himself well with film before the wedding, but should also double check his speedlight charge.



ELECTRONIC FLASH FOR WEDDINGS

At receptions, experienced photographers try to resist the temptation of shooting roll after roll of film. Exposures should be limited to guests who request pictures and provide name and address and to those whose pictures are specifically requested by someone in the wedding group. Otherwise you will find that a substantial percentage of the investment will be tied up in negatives from which no prints are salable.

Actually, what is required is a complete picture story of the wedding. Try not to be too factual. The people photographed are the ones who buy the pictures, so make sure of pleasant expressions and reasonably flattering poses. As a general rule, if something of interest occurs, snap it. If it is mildly interesting to the photographer, it will probably be of intense interest to those involved.

Certain pictures are of sure-fire popularity and are usually considered "musts" by those experienced in this field. Among these are mirror shots of the bride at home before the wedding (combing hair, applying makeup, etc.). Others of the bride, first with the mother, then with the maid of honor, adjusting veil are also desirable. Next, one or more snaps with the attendants around the bride, arranging veil and train. A shot of "something

old, something new" may be appropriate. Next, take a few of the bride distributing bouquets to the attendants, the mother presenting the bridal bouquet to the bride, the bride pinning a boutonniere on father's lapel.

A series of pictures may now be taken of the bride on a stairway or in front of a fireplace (or draperies) as well as of the bride alone and with attendants.

Be sure to get pictures of the bride leaving the house and of father assisting bride into car. Although these are taken outdoors, the speedlight is used. If possible, choose a position with the sun behind the subjects and reduce the diaphragm aperture one or two stops. The resultant pictures will have a distinctively different appearance from the snapshots the subjects would take themselves. Shots of the bride in the car, taken through an open door, are popular and offer chances for good composition.

These are only suggestions which may be helpful. Other ideas for good shots will come while working. You may also expect suggestions, some good, others poor, to be provided by those present, as well as gratuitous advice concerning the proper shutter speeds and diaphragm settings to use.

"Wedded." Speedlight here illuminates car when the bridal couple leaves the church.



The next group of pictures will be made at the church and it is desirable to arrive before the bride so that snaps may be made of her leaving the car and ascending the stairs. A number of pictures may be made in the church before the wedding. Sometimes permission may be obtained to make exposures during the ceremony. In this case, take care not to go to extremes. A very few pictures that have especial interest or significance are all that are required.

After the ceremony, be ready at the back of the church with plenty of film and charged speedlight for shots of those coming down the aisle. In addition to other picture opportunities, the receiving line in back of the church will require many exposures.

Some more flash-fill shots will next be required. Be sure to take some of the couple outside the doorway and don't miss the popular "rice shots" before they enter the car. The bride and groom inside the car provide additional picture opportunities. Try one with the door open and another through the rear car window with them looking back. After the couple leaves, make exposures of the bride's father and mother and of the four parents in a group.

The receiving line at the reception provides many chances for good pictures, as does the cake, its cutting and other shots at the bridal bouquet table. The extension light may be set up here and two lights used, if desired, as a number of pictures will be made at this location.

The story in pictures is not complete unless one of the bride throwing her bouquet is included. An over-all shot of bride and attendants is good. Then take a close-up of the bride only. A shot of the girl catching the bouquet is a "must." Have the action repeated if necessary, until exactly the right effect is achieved.

The bride alone in "going away" costume makes a fine picture as does the couple with their luggage. Include some "rice shots" of the couple leaving the house and in the car. Now, make a few shots of parents and guests waving farewell and your first wedding assignment is complete.

Everyone, including the photographer, has had a busy day. Let's hope all of the pictures turn out well. Even if only a part of them do, the quantity of prints ordered will be surprising and very gratifying, as will the re-orders that are almost sure to follow.



LOOK DOWN BEFORE YOU SHOOT

Text and Photographs by Hans Kaden, FRPS, FPSA

Although many landscapes, snowscapes and seascapes have a "postcard" look, this difficulty is really easy to avoid.

MANY A BEGINNER takes his camera out on a weekend trip—just to take a few pictures—after those of his newborn baby begin to lose some of their fascination. If he is a city dweller, he longs for the countryside or seashore. He brings home scenic pictures as souvenirs and is often disappointed. Although he is a potentially promising photographer, he realizes only later that at the very beginning of his pictorial career he has entered one of the most difficult fields of photography—landscapes, or outdoor photography.

The difficulty does not lie so much in the technique, which is rather simple, but in his choice of rather commonplace subject matter. He makes a record of a scene which enchants him without realizing that the result can be only a "postcard" effect and not a picture.

Such weekend and vacation pictures are either stored away in a desk drawer or pasted in an album and that is usually the end of it. We all started out that way. Nothing is wrong with it but you cannot expect someone else to see what you see in such landscapes. While they bring back to one person the memory of a wonderful time with family or friends, they will not have the same

impact on others. For them, it is only a postcard record—unless one has been able to inject something *more* into these scenes.

It is not easy to keep a landscape, seascape or snowscape from being just a record. Many landscapes are rejected by salons for exactly that reason. A postcard picture is rarely a pictorial presentation. To begin with, the very few landscapes that are successful usually reveal neither place nor time. In pictorial work no credit is given for travel to faraway places to find subject-matter. The secret lies in the careful selection of the subject matter itself which should be simple and skillful in the arrangement of its component parts.

Rather than discuss subject-matter in this article we shall talk about one of the most important parts in the picture arrangement—the foreground, often neglected by both beginners and advanced workers alike. In a postcard or similar record the foreground is of secondary importance. But it is all significant in pictorial work.

Photography, like all graphic arts is a two-dimensional medium. It lacks the third dimension of depth and space. We can only *suggest* the third dimension by means of

Objects in the immediate foreground may be used to give the eye a "step-off" to subject matter in the distance. In the rural scene at the right our eyes are led naturally through the trees to the valley below and hills beyond.

Though the sky often lacks fascination when the foreground of pictures is neglected, such effective—and essentially simple—shots as "Hazy Morn" will result with thoughtful selection and use of a foreground, a necessary transitional device in sky shots and seascapes as well.





A. Paul King

LOOK DOWN BEFORE YOU SHOOT

Pilings make an excellent foreground. In "Weather-beaten," Mr. Kaden has used their dark, irregular forms to contrast sharply with the smooth beach and highlighted water in the distance.



Though still waters run deep that is not the characteristic which interests the photographer. Rather, significant to him is the diversity of reflections which gives contrasts and design to his pictures. In "Japanese Lantern," left, A. Paul King has used all phases of space — pitting nearness against distance—to achieve this total effect. His foreground of reeds was imported from several feet behind the camera to carry out his idea.

perspective. In this effort, by creating the feeling of space, the immediate foreground becomes a tremendous help. The modern landscape photographer makes careful use of this. Often the most interesting subject-matter is placed in the foreground, the distance functioning only as a background. Or, should the point of interest lie in the distance, the immediate foreground is then chosen to give the eye an easy "step-off" into the distance.

The conventional way of arranging a landscape is by foreground, distance and sky, each of these being given one-third of the space. This, however, lacks the appeal of the unusual. The modern approach of filling the foreground with some important subject matter, or using it as a frame, has greater emotional impact. The *immediate* foreground—the space right in front of the camera (about 10 to 30 feet away) is the *important* foreground and must be used for this purpose.

This space may be used mainly in three different ways: as a frame for the distance, as transition into the distance or as subject matter itself. If we find an interesting vista we should look for something in the foreground to frame it. It may be a tree or a group of trees, a few bushes, weeds or flowers, a rock, fence or window. The list of what can be useful is almost infinite.

By framing the foreground—separating it from the distance—a strong feeling of space is given. *Hazy Morn*, successfully exhibited in over 70 salons without ever being turned down, is a fine example. The reason for taking the picture was the unusual sky. It is actually a sky picture, but without the few dune grasses in the foreground it would have been a failure.

There is usually always something around which will serve the purpose. If there isn't, build your own foreground. Small tree, bushes, driftwood or a rowboat in a beach scene may easily be placed where needed.

Take your foreground material along with you on your

picture hunting trip or pick it up on the way. The sunset by A. Paul King was built up in this manner. Looking for a place to photograph sunset over the bay we found a cove with quiet water (this is important for good reflections). There was no immediate foreground, however, only a bulkhead. The marsh grass behind us was too far away. We decided that it would make an excellent framing foreground, however, so we cut some long-stemmed plants and nailed them against the bulkhead. The effect was quite realistic. Small bushes set into the foreground or even tree branches held by a friend will serve the same purpose. So whenever you have an interesting view in the distance, look around for something for the foreground. You will be surprised how much it will help your pictures!

A transitional foreground will lead the eye gently into the distance. Most landscapes, seascapes and snowscapes call for this type of foreground. It must be arranged and selected with great care. A few steps to the left or right will change the effect. Moreover, it must be connected with the distance to give the eye an entrance. It should not stop the eye the way a wall or fence running across the entire width of a picture would do.

Other extremes must be avoided, too. A straight road taking the whole width of space would lead the eye right through and out of the picture by its extreme perspective. A winding path, the pattern of wagon tracks on a narrow road or a brook wandering through the scene are desirable foregrounds.

A transitional foreground such as this is most important whenever water is the subject such as beach scenes. The vastness of the sea will lose its fascination completely if the foreground is neglected. Take, for instance, a sunrise picture. On many occasions on field trips with beginners I have almost always found that the foreground was badly neglected. The ocean and the sun

"Homeward Bound." The eye enters along the furrows and follows the farmer on his way to the barn. Here is a transitional foreground that connects us with the distance.



LOOK DOWN BEFORE YOU SHOOT

will always look the same. We cannot change that. We can select a different foreground, however and achieve hundreds of different effects.

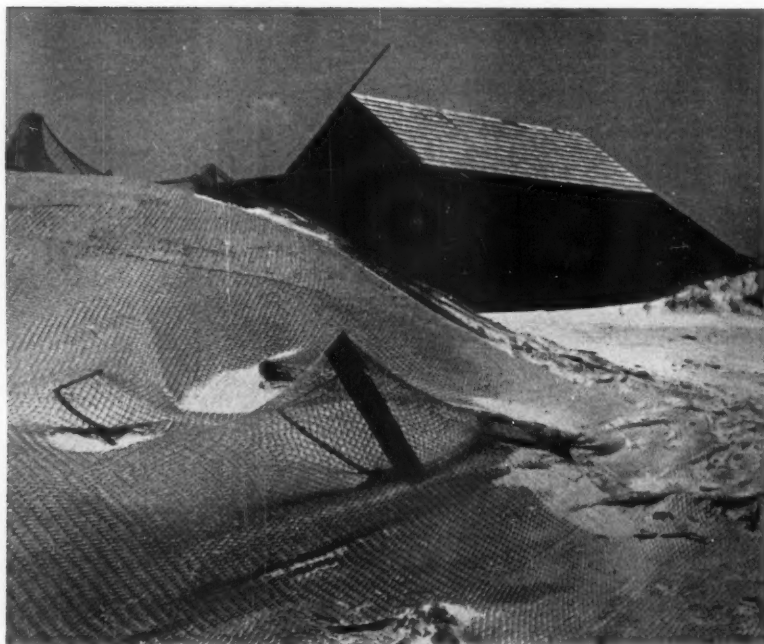
Try it out. Set up your camera where the play of the breakers promises interesting patterns. Watch the gently rolling breakers and release the shutter only when you see an interesting design of line in the immediate foreground. Look for pilings nearby; they make excellent foreground matter. Look for quiet water which gives interesting sun reflections. Perhaps you have tried a mountain stream or a fast running brook. These pictures rarely have a chance to be accepted in exhibitions because rough water never produces a good foreground. A definite pattern will make a more interesting transitive foreground.

But now, since we place so much importance on the foreground, although it might not be the main center of interest it *must* be in sharp focus. A blurred foreground is poor photography.

The small camera user has no problem here. He simply sets his distance scale on the hyperfocal distance for the opening to be used and forgets the rest. If the camera



When the picture actually lies in the foreground itself it is possible to have such a provocative abstract pattern as in "Rhythm," above.



Filling the space in front of the camera requires considerable thought and judgment. In "Fishery," the nets in the foreground fill much of the space and effect a powerful composition.

is set on the hyperfocal distance everything from half this distance to infinity will be in good focus with the sharpest focus on the immediate foreground, which is exactly where it is needed.

The hyperfocal distance is a given distance for any particular focal length and opening. It is a common mistake to set the camera on infinity for outdoor scenes: the foreground will never be sharp. Here is a table of the most commonly used hyperfocal distances for popular negative sizes, focal lengths and f/stops:

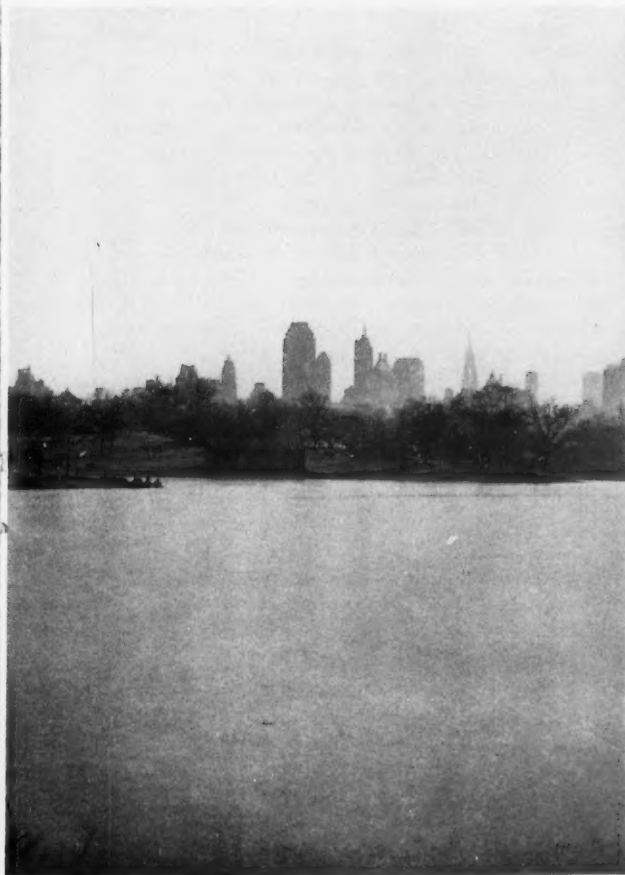
Focal lengths	f/stops					
	5.6	8	11	16	22	
2 inch	30	21	15	11	8	hyperfocal distance in feet
3 inch	45	31	23	16	11	
4 inch	60	42	30	21	15	
5½ inch	82	57	42	28	21	

To use this table the distance of the nearest object in the foreground must be gauged to find the opening required to have it in good focus.

For example, if the nearest object is a little bush about 12 feet away and a lens of 3-inch focal length is used, it will be necessary to use an f/stop of 11 and to set the distance scale on the hyperfocal distance for this opening: 23 feet. Now everything from half this distance—11½ feet—to infinity will be in good focus.

Speaking of foregrounds, we cannot overlook pictures which actually lie in the foreground itself. Sand, snow and shadow patterns, close-ups of tree trunks, cobblestones, reflections on wet pavements are pictures of this type. Here the whole picture space should be given to the foreground. Often the modernist will leave out the sky completely in favor of an interesting abstract foreground pattern. This can be found anywhere and may yield fascinating designs which the average person would pass by. It makes excellent pictorial subject matter and does not demand travel far afield.

Here is the difference a foreground makes. Many persons come back with a snapshot like that at the left—an uninteresting view of the New York City skyline. A short shift down the shore brings a better foreground into the picture, one which adds depth and converts a snap into a potential salon print.



DESIGN IN

"I WANT TO SEE PEOPLE love and admire the life around them," says Tet Arnold von Borsig and explains that his new project of close-up studies of nature has enriched his whole outlook toward life. "In the winter, trees were strangers to me, now I pause to bend down a branch so I can look at the leaf-buds. Each one is different, each one tells me about the tree."

Borsig, a native of Germany but resident of this country for many years, has a previous reputation from the many series of pictures he has taken in Long Island and for his sympathetic and informed interpretive photographs of sculpture. This new series, some typical examples of which are reproduced on these pages, are now attracting new attention to his work. *AMERICAN PHOTOGRAPHY* is proud to be the first magazine to present them to the public.

The series was begun in 1949, but he has worked on it intensively only over the past year and now has a thick bundle of prints, all of them fascinating in design and detail. Residents of the New York area will have a chance to see some of them displayed late in April at Willoughby's camera store and in the early summer at the New York Botanical Gardens, Bronx.

On the technical side, the close-ups were made using a German-built Stegemann camera taking 9x12cm film. Borsig uses either of two lenses, depending on the magnification desired, either a 15cm Tessar or an 8.5cm Zeiss Protar wide-angle. His first studies were made on Panatomic-X and he is now using Isopan. All the subjects are illuminated by daylight to prevent wilting the specimens during the necessarily long exposures. The light is balanced by the use of heavy tinfoil curved around the specimen as a reflector.

In his enthusiasm for this work ("I have discovered a whole new world!" he explains) he would like to see many photographers join him in discovering these wonders which are too small for casual observation. "Carry a small (6x) magnifier in your pocket, and see the amaz-

A pagoda-like closeup of *Ayuga* (x6).

NATURE—A STUDY OF THE MINUTE

a portfolio by Tet Arnold von Borsig



The weird appearance of poppy seeds when enlarged about x3.

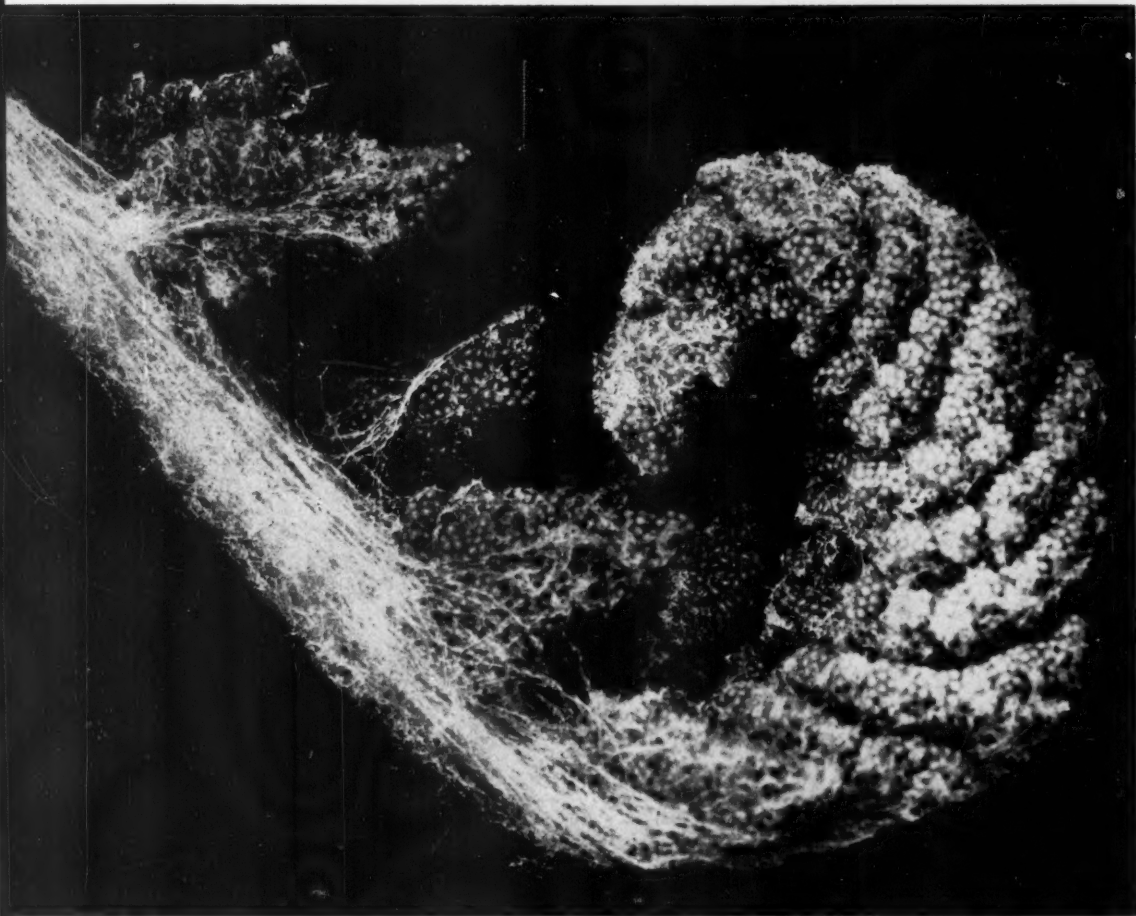
DESIGN IN NATURE

ing things you can find right in your own neighborhood. It is not necessary to travel to find interesting sights. They are all around you."

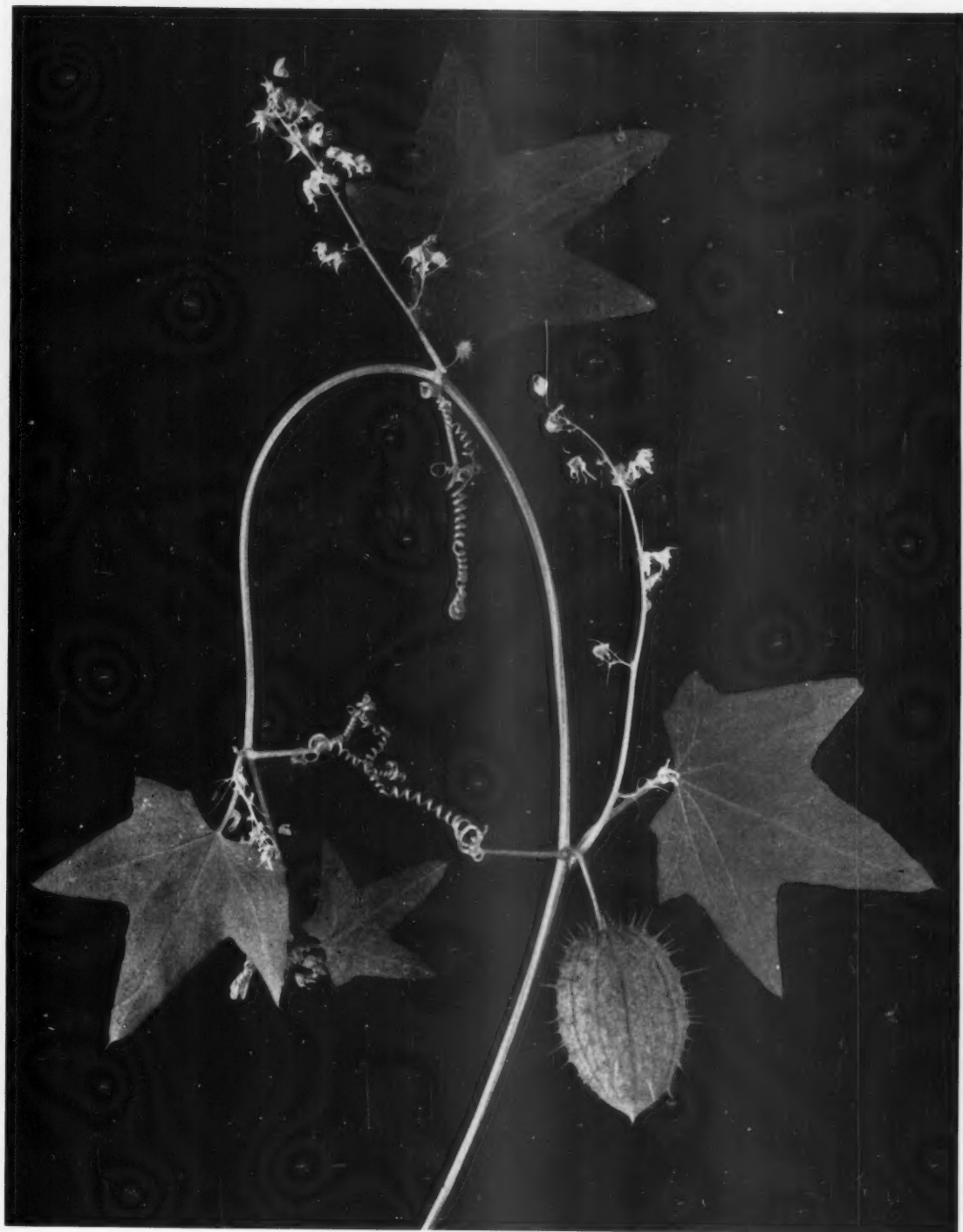
It is not necessary to have special equipment, either, he maintains. Any camera which will permit a fairly

long bellows extension or a supplementary lens, will enable the photographer to begin to explore the world of the minute.

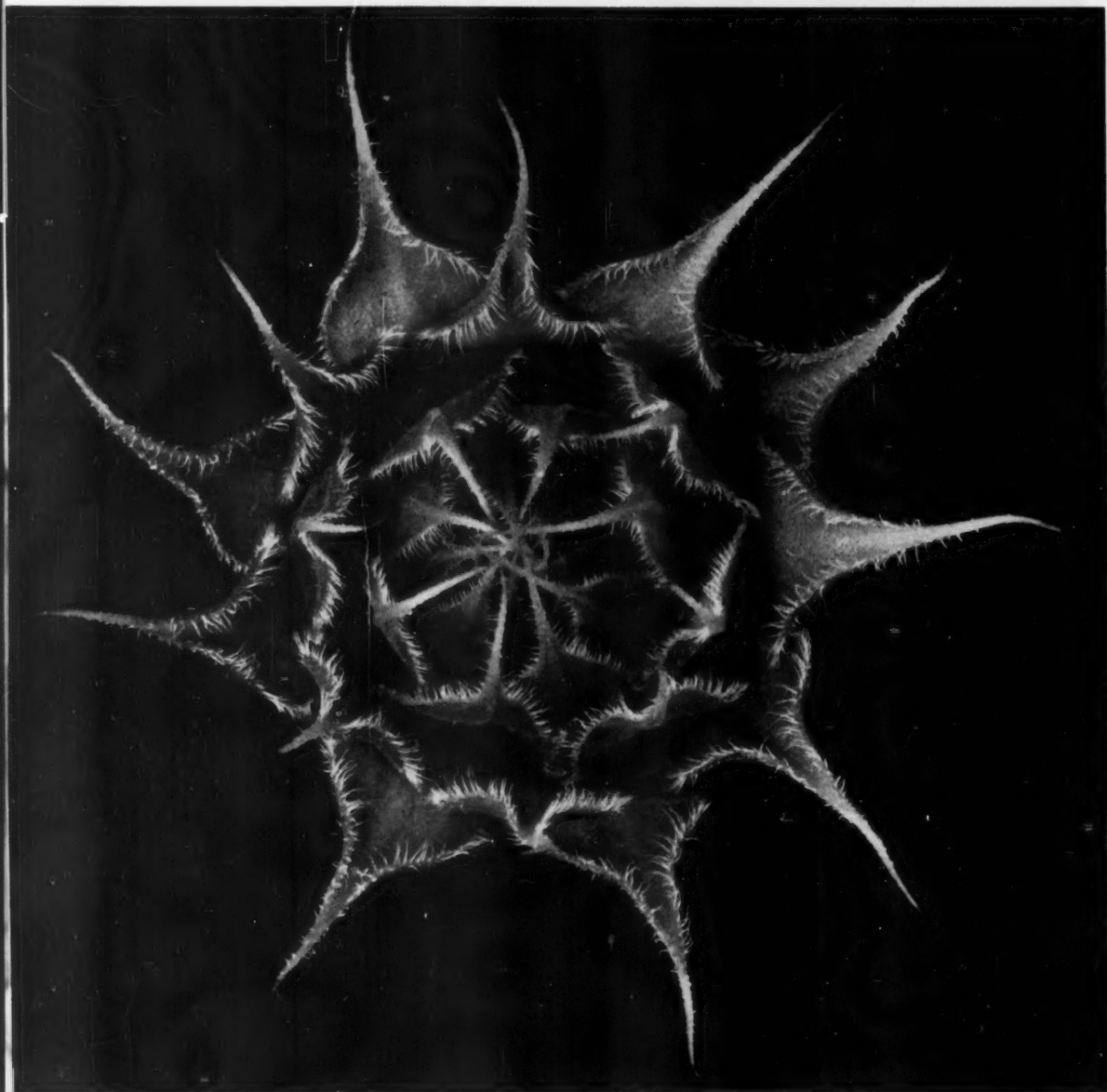
Previous to beginning this series, Borsig made an extensive tour of western Germany for a publisher, making



Above, the fantastic "winter landscape" is the extreme tip of a fern, magnified about five times. Opposite, is one of many designs Borsig has found in the wild cucumber. This is about twice natural size.



This fringed and spiked "rose" is the sunflower bud, original about 1½ inches across. Across the page, are morning glories about x7.



170 color shots of famous paintings in museums in the Allied-held territory. He has also illustrated "Chinese Sculpture of the Metropolitan Museum of Art," (1944) and "Die Toscana" (1939). The latter was a tour of the

architectural magnificence of the Tuscany region in Italy.

In addition, quite a number of his photographs have appeared in architectural and general interest publications, attracting a wide and favorable attention.



DEFINITION AND NEGATIVE

THE LATE Alfred Stieglitz was discussing photography one day when the subject of processing technique came up. Whisking a little tube of common M-Q prepared developing powder from the folds of his picturesque opera cape, and holding it up to view with a conjurer's flourish, he declared: "*That's all anyone needs to know about film processing!*"

Coming from one who had studied photochemistry in Berlin under the inventor of panchromatic plates, this was a surprising statement; but, as usual, the old man had hold of a good idea. At the time of his heyday, forty or more years ago, photographers were artists in the darkroom as well as out of it, and even the film makers worked, figuratively, pretty much in the dark. But since then science has narrowed down the areas where differ-

Text and pictures by JOHN NICHOLS

Film and the way it is processed is a big factor in achieving good photographic definition in your work.



Definition is important, not in theory, but in the final result. Even in a photo-engraving the fine definition of this photograph is apparent.

PROCESSING



Water and its constant motion present a difficult subject. In this unusual shot John Nichols has accomplished a high quality of definition.



1

This is a 27-diameter enlargement from a section of press-type film. The grain, however, is not the limiting factor; the fuzzy edges here are three times the size of the average grain.

DEFINITION

ences of opinion can exist and processing has become more and more standardized, until now it is possible to go far in professional photography without owning a scale. The M-Q tube has won; though here and there some rebel will continue to be curious about what that white stuff in the prepared-developer cans really is.

Practically all professional photographers would agree with the Stieglitz idea to this extent: that it is profitless for one who has not devoted considerable study to photochemistry to attempt to improve on standard published formulas. We are not concerned here with innovations in processing. The subject of our inquiry in this series of articles is not photochemistry as such, but how definition can be preserved throughout the black-and-white photographic process.

In the film developing stage, the film may lose some definition as a result of 1) graininess; 2) reticulation or lateral movement of the emulsion.

The scientists have studied grain exhaustively, as meteorologists study the weather, without being able to do much about it (though over a period of years great

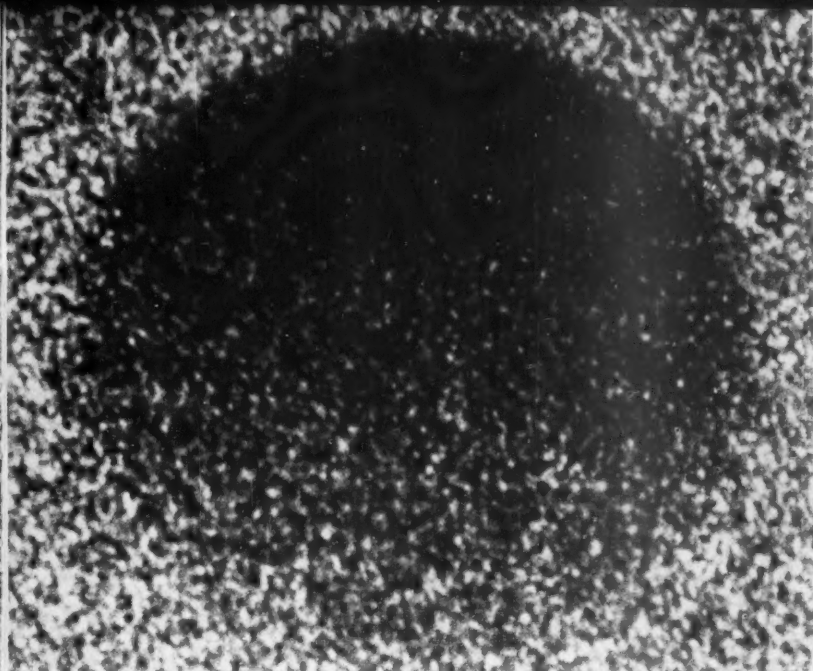
advances *have* been made). Grain-size counts with a measuring microscope show a typical grain in a slow film

to be $\frac{100,000}{3}$ inch in diameter, of a fast film $\frac{100,000}{8}$,

Multiplying the latter figure by twenty, the biggest enlargement ratio likely to be used, gives 1/625-inch; that is, the typical grain in the printed image would be only $\frac{1}{3}$ as large as the smallest spot (1/200-inch) that could be distinguished by the normal eye.

However, such fast films also contain grains $\frac{1}{5000}$ inch wide, and even larger. Such grains *could* be distinguished in a 20-diameter enlargement.

Even these larger individual grains could not cause the grainy *visual appearance*, or *graininess*, so often seen in enlargements of as little as eight diameters. This graininess is largely the result, either of actual mergers of grains by mutual attraction or of upper grains overlapping others deeper in the emulsion, as will happen in all but the thinnest parts of the negative. The merger of grains, or *clumping*, is inevitable, since a softening of



This is a x100 enlargement (negative) of the image of the sun in the print on the opposite page. Note how the grains clump to form small chains and also how the contrast falls off at the bottom due to haze.

2

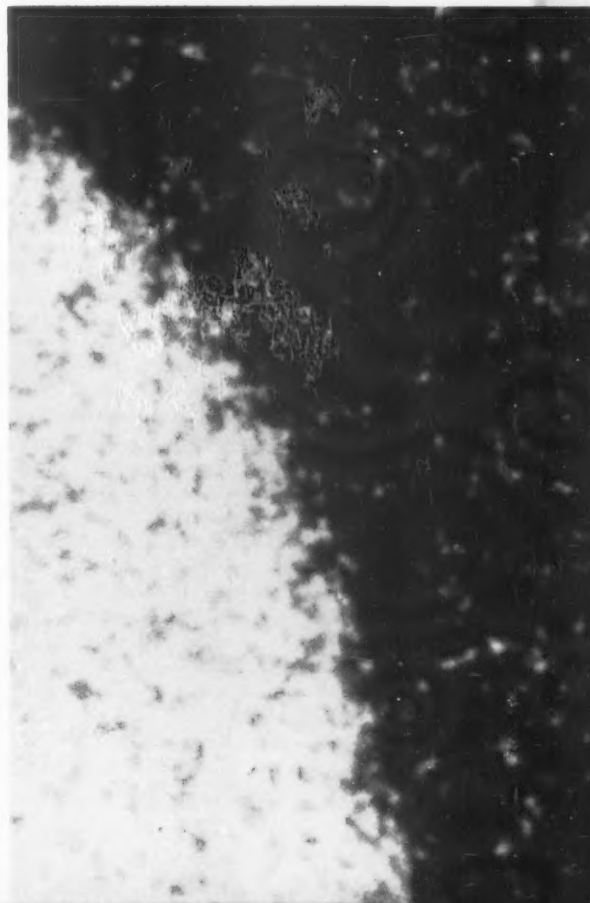
3

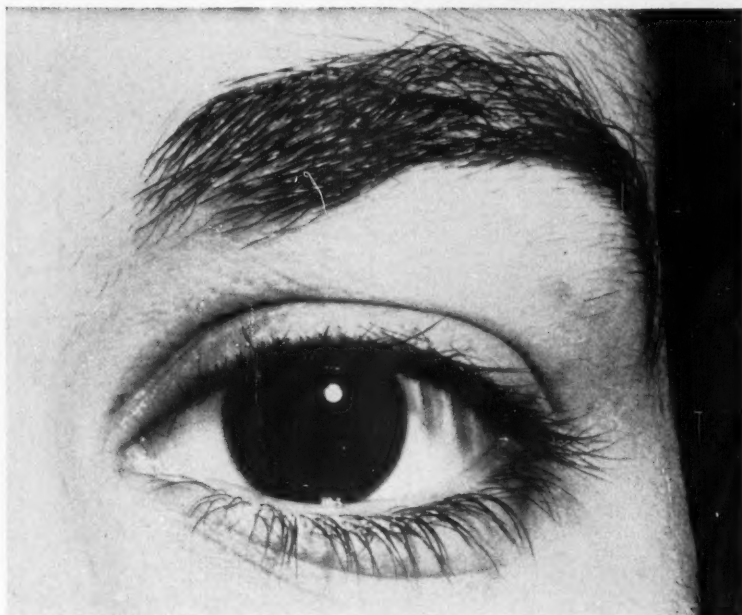
The edge of the hole in a razor blade looks like this when the photographic image has been magnified 750 times. The sharp edge indicates that there has been little scattering of light within the film.

the gelatin sufficient to permit development is sufficient to permit wandering of the grains within the gelatin sponge. Clumping may be inhibited by anything that inhibits the excessive or protracted swelling of the gelatin.

The impression of graininess is most marked in the middle gray tones of a print; and it is easy to see why. When an area is mainly dark, small white specks will go unnoticed and vice versa. When light and dark areas are equal, as on a checkerboard, the pattern is assertive. Unfortunately this range of tone is often used for faces, filtered skies and other smooth expanses of subject matter.

Figure 1, a 27-diameter enlargement from a negative on press-type film processed in Ansco 17M developer, has some features of interest. The graininess is not entirely fatal to pictorial quality, in fact it gives the print the quality of a painting by the impressionist Seurat. Coarse as it is, the graininess is not the limiting factor in definition; the fuzzy edge is three times as wide as the average-sized grain, or clump. Had a sharp image fallen on the film, the grains would have filled it in like a crowd





4a

DEFINITION

at a barrier (see Figures 4a, b and c).

Let us take a closer look at the sun (Figure 2, negative of Figure 1, 100x enlarged). We can now see how the grains combine to form clumps and chains. There are also to be discerned two little W-shaped clear areas which suggest that the gelatin had been subjected to swelling and had begun to reticulate on a very small scale. Note also that the sun has excellent sharpness at the top where contrast is high but below, where haze cut down the contrast, sharpness is impaired.

Perhaps the worst thing that can happen to a photographer is to get graininess in a portrait. Many promising friendships are curdled in this way. Figure 4 shows part of a series of test pictures of the same face. This is an experiment which any owner of a small camera can and should make. A roll of film is given a series of identical exposures with identical subject matter. Strips are then cut off the roll and given different development. Comparison of the results will give accurate information, since development is the only variable in the problem.

Figure 4a shows a sharp picture of an eye, made with a 5x7 camera and flash. This picture is *too* sharp for good portraiture but shows the wealth of detail present. Figure 4b is the same subject made with a 35mm camera, with the film developed in standard print developer and enlarged 50 diameters. The destructive effect of graininess on skin quality is obvious. Figure 4c is identical with 4b except that the negative was developed in Microdol. Substantial improvement has been secured. (To obtain these large blowups, enlargement had to be done in two stages, which not only enlarged but exaggerated the grain structure.)

The subject of grain suggested the subject always associated with it in definition studies, though not directly dependent on development: irradiation, or scattering of light within the film. This is of great importance to astronomers who measure the magnitude of stars by their diameter on the negative; but other photographers are not much concerned due to the minute amount of the scatter. To test this, a double-edged razor blade was pressed against a medium-contrast film which was then exposed to parallel light and developed in standard print developer. Part of the image of the center cutout was selected and a x750 enlargement made of it (Figure 3). In spite of the extreme graininess the position of the edge can be located with accuracy. The irradiation is seen to be negligible. If it were not, a wide gray band would be seen. It appears that effects often blamed on irradiation are really caused by halation, due to faults in the optical system.

The sharpness attained in Figure 3 certainly cannot be credited to fine grain, but is due to the inherent contrast of the film. Resolution, however, as exemplified by the eyelashes in Figure 4, is affected by grain size.

To sum up what we have learned about definition and its relation to negative processing:

1) Grain size is mainly determined by choice of film, though true fine-grain developers make a substantial improvement.

2) Grain size should be planned never to exceed 1/200 inch in the final enlargement. Much lower values are desirable. Fine grain development will not increase sharpness but will increase resolving power. Graininess is usually not the limiting factor in definition, unless the



4b

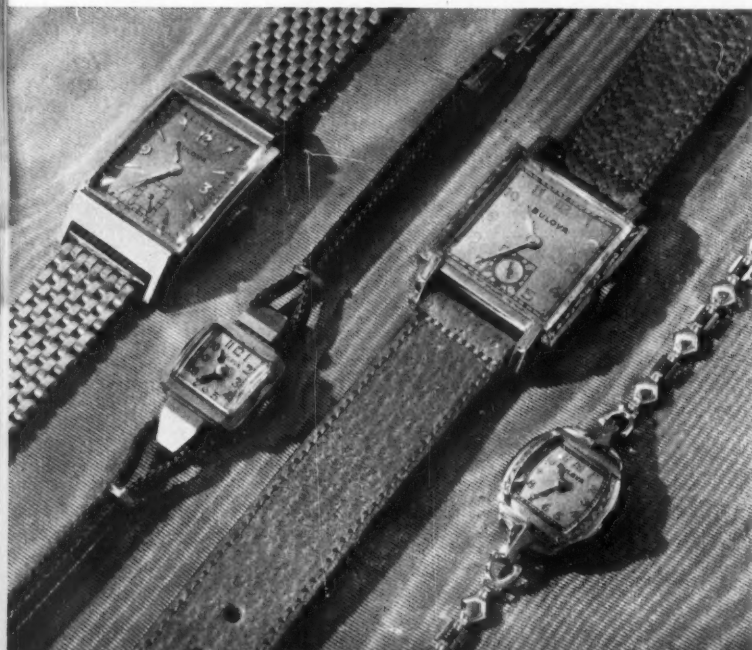
On the opposite page is a sharp print made from a 5x7 negative. This will serve as a comparison with the same-sized images on this page which were enlarged from a portion of 35mm film. Above is a film developed in standard print developer and below one developed in Microdol. Both are enlarged 50 diameters. Note that the grain is most objectionable in the skin tones, and note how the eyelashes have been completely lost.



4c



DEFINITION



Definition is particularly important in commercial subjects such as these, taken by the author. But it is equally important in all other phases, for it is this quality which distinguishes photography from all of the other graphic arts.

film has been abused in processing (or the image is exceptionally good). The gelatin should never be allowed to swell to a point where it does not return to its original position.

3) Graininess must be especially avoided in sky and skin.

4) In case you *do* get a coarse-grained picture, pretend you did it on purpose.

Either way, you can show your color slides at their best with Kodak Projection Equipment

The
Kodak
BULLETIN



LIGHTS ON

Here's a new kind of color slide enjoyment. The Kodaslide Table Viewer, Model A, combines screen and projector in one compact unit, and is so attractively designed that many make it a permanent fixture in their living rooms.

With a Kodaslide Table Viewer you will always be ready to show your slides to a visitor . . . or to enjoy them yourself . . . without rearranging furniture or turning off the lights.

The Model A Kodaslide Table Viewer has a big Day-View Screen to give you brilliantly clear pictures, enlarged about five times. A plunger-type slide changer accepts either 75 cardboard or 30 glass slides—or a combination of the two. Has rugged die-cast aluminum body finished in buff and brown. Price, \$97.50. Carrying case, \$27.50.

Similar in operating principle but made of dark mahogany plastic and incorporating a simple, side-to-side single slide feed, the Kodaslide Table Viewer, 4X, provides maximum performance at an attractive price. 4X has finger-tip focusing; the Day-View Screen provides easy slide viewing in a brightly lighted room with four-time enlargement. Price, \$49.50. Carrying case, \$15.50.



Kodaslide Table
Viewer, Model A



Kodaslide Table
Viewer, 4X



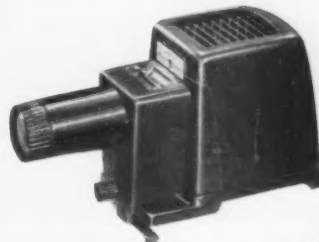
LIGHTS OUT

Whether you are just stepping out in color—or are stepping up . . . you will want a slide projector that's made for years of enjoyment . . . one that provides the projection quality your most critical audiences will applaud. That, of course, is a Kodaslide Projector, Model 2A, with 5-inch Kodak Projection Ektanon Lens $f/3.5$. For projection in larger rooms and at greater distances from the screen, you can select a 7½-inch Kodak Projection Ektanon Lens $f/4$. Definition is needle-sharp, color is crystal-clear. Screen images assume a lifelike reality. Push-pull slide changer. Heat-absorbing glass and efficient convection cooling protect your slides. Has built-in elevation control, rugged die-cast aluminum body. Price, with 5-inch lens, \$52.80; with 7½-inch lens, \$63.45. Carrying case, \$15.00.

Economically priced, but worthy of the plaudits of color slide enthusiasts, is the Kodaslide Merit Projector. It has a 150-watt lamp and a 5-inch fully corrected Lumenized $f/3.5$ Kodak Projection Ektanon Lens to provide maximum screen brilliance and warmth. A special feature is the top-slot feed which permits easy operation and eliminates side-to-side jarring or unintentional repeats. Built-in elevating mechanism. Price, \$26.10. Carrying case, \$9.50.



Kodaslide Projector,
Model 2A



Kodaslide Merit
Projector

Prices in this Kodak Bulletin are list, including Federal Tax where applicable, and are subject to change without notice.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

Kodak
TRADE-MARK

FRANK J.
HELLER,
FRPS—APSA



Experts' Choices For Fine Prints

No. 3 of an informative series... how leading exhibitors choose papers to fit their salon aims

"EUCALYPTUS" is one of Frank Heller's newer salon prints. The rich darks and delicate light tones of the subject demanded a paper of fullest tone scale, plus the ability to separate closely spaced tones at both ends of the scale. Mr. Heller wisely chose *Kodak Opal Paper G*, the image quality and tonal range of which have made it the most popular of all salon media.

For the beginner, Frank Heller has a word of advice. "I strongly advocate that an individual

standardize his photographic procedure by using one type of film and one type of paper until he thoroughly familiarizes himself with their inherent qualities, and then and only then explore the other paper surfaces that are available." This, he feels, is the best way to build a sound foundation of experience, and an understanding of the potential quality inherent in good photographic paper. Kodak would also add that it is a thrifty, paper-saving policy.

THE BEGINNER needs to gain experience rapidly—and the top-quality, moderate-speed papers such as *Kodak Opal* may seem inconveniently slow. For more rapid printing plus excellent quality, *Kodak Platino Paper* (about two and one-half times as fast as *Opal*) and *Kodak Medalist Paper* (about six times as fast as *Opal*) are good choices. Both of these are rich, warm-black papers, with a choice of surfaces and a range of printing grades to accommodate both soft and contrasty negatives. For exhibition and gift prints, lustrous *Platino G* or *P*, or *Medalist G* or *J*, is appropriate. This small reproduction of Gottlieb Hampfler's "Pennsylvania Snowscape," which appeared full-page earlier in this series, is from a print on glossy *Platino F*.

WHAT is the purpose of the print—exhibition, gift, publication, small display, large display? Whatever the purpose, there's a Kodak paper to fit it. The small reproduction of Josef Schneider's "Susan" is from a print on *Kodak Illustrators' Special*—the paper he would naturally choose for top-quality halftone reproduction. *Medalist* would be an alternate choice. For exhibition, *Opal*, *Platino*, or *Medalist*, in a salon surface. For a luxurious portrait presentation, *Opal* or *Kodak Opalure Print Film*. And, of course, each of these fine Kodak enlarging papers is matched by a contact-print paper of similar character.

Know your Kodak papers, for knowledge spells success. For fine exhibition enlargements, gift prints, home decoration—choose from warm-black *Medalist* and *Platino*, brown-black *Opal*, *Ektalure G*, and *Illustrators' Special*, and neutral-black *Kodabromide*. For special applications, *Kodak Mural R*, *Resisto Rapid N*, *Opalure Print Film*, *Translite Paper*. For contact prints, *Kodak Azo*, *Velox*, *Resisto N*, and others. Consult the Kodak Data Book on Photographic Papers, and your Kodak dealer.



Kodak
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EASTMAN KODAK COMPANY, ROCHESTER 4, N. Y.



"Eucalyptus," Frank J. Heller, Bartlesville, Oklahoma. Negative $2\frac{1}{4} \times 2\frac{1}{4}$ on Kodak Super-XX Film. Exhibition print on Kodak Opal Paper G (moderate-speed, warm brown-black, with a fine-grained lustre surface on cream white stock). Reproduction print on Kodak Medalist Paper F (glossy, pure white stock). The original prints, of course, possess a quality and tonal range that cannot be fully retained in ink-and-half-tone on high-speed printing presses.

Full-Color Movies

Easy As 1·2·3

Brownie

MOVIE CAMERA

Easy-to-buy, easy-to-use, the Brownie Movie Camera has placed home-movie enjoyment within everyone's reach. Full-color or black-and-white movies of the family... the things you do and the things you see... are now as simple as Brownie snapshots. And the "Brownie" is a quality movie camera! Its fast $f/2.7$ lens makes marvelous movies, outdoors or indoors.

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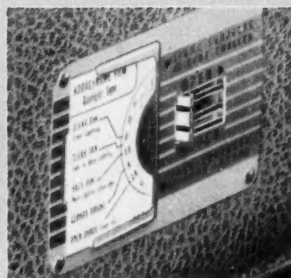
EASY TO ENJOY—OFTEN. Brownie economy doesn't stop with the camera's low \$43.30 price tag. \$2.90 buys a whole roll of 8mm. black-and-white film... \$3.95 buys full-color Kodachrome Film—complete. One roll gives you 30 or more average scenes... and Kodak processes your movies at *no extra charge!* Your Kodak dealer will be happy to show you the "Brownie"...and chances are you can buy it on easy terms, if you like. See him—soon!

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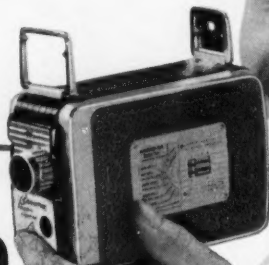


It tells you what exposure to use



"Click stop" the right lens opening

... aim—and shoot!



I WAS looking over recently one of our more prominent salons of what purported to be art in photography. It had cost me over 100 dollars to get there and 75 cents more for a catalog and my first impression was that I was not going to get my money's worth. The tax for the catalog amounted to an admission fee because the amount of advertising in it was ample evidence that it hadn't cost the salon anything. All I could think of was that for a slightly smaller fee and no traveling expenses I could have seen better photography and been vastly more entertained by spending the evening in the local movie house near my home.

It had been quite a number of months since I had seen a big salon and I wondered if my viewpoint had become sufficiently detached to let me get an impersonal impression of what is supposed to constitute art in photography nowadays. We all have been hearing a lot of criticism of the salons. This has come both from the modernists who think all conventional art is bunk anyhow and from serious pictorialists who feel that salons have fallen somewhat from grace. So, with what passes for an open mind I went around again and took another look.

What stood out there was a deadly monotony. I don't mean in subject matter. There are only about so many objects in the universe and though all we can do is photograph them again and again, that does not condemn us to a life of monotonous repetition. A look through a kaleidoscope will convince anyone that a few objects can produce an amazing variety of effects with different juxtapositions, arrangements and lighting. The kaleidoscope, for example, contains a very limited number of objects yet can be shaken a million times without the same combination coming up twice—as hopelessly an activity as trying to beat a slot machine.

The present-day pictorialist seems bent on getting monotony by falsifying values by giving everything the same treatment regardless of subject matter.

Every picture on the wall seemed bathed in a supernal light such as was never on land or sea. A cat or a babe, a nude, a landscape or an industrial scene were all made into posters whose first purpose is to grab immediately the attention of anyone who comes within 20 feet. They all shouted at once and it was impossible to hear anything in the general hubbub. This was the first aspect of the general monotony that greeted the onlooker's senses.

To get such a poster effect as this in the pictures it is necessary to have run them from pure white to jet black, however short or long the scale. I wondered if this were my imagination and checked them again to make sure. I found that of the over 200 pictures shown practically every one had this characteristic. Then I listened in on a lecture by a prominent pictorialist

POP SEZ...

Franklin I. Jordan, FPSA, FRPS



who was instructing beginners in the mysteries of making salon prints. From the number that he has had hung he ought to know what will get by a jury. Sure enough, in his list of indispensable qualities required for a salon print, he casually mentioned some pure white and pure black tones.

This seems to me one of the fundamental reasons for the monotony of our salons. Of course we must have black and white for a monochrome poster, but I wonder why we necessarily have to give everything the poster treatment. A poster is a highly specialized form of art; its main object is to impart information. To reach as large an audience as possible it must have a strong impact.

Many posters are very beautiful and serve their purpose admirably, although most intelligent critics do not esteem this the highest form of art. But why give everything the same treatment whether it is the best for this particular subject or not? It is impossible to find one setup in a hundred that has in it either white or black, let alone both. This treatment, then, is an obvious exaggeration of values for the great majority of pictures.

It makes me think of a standardization that we had during the war. Many of the WACs looked pretty stunning in their uniforms. Many others were not displayed so well in the same uniforms and we were glad when the girls got back into civies where they could show their stuff to individual advantage.

Another thing alluded to by the lecturer who was giving away the secrets of getting into salons, tied in with the foregoing. Mind you, he wasn't giving a lecture on art. He was just telling the neophytes which key fitted a certain door. He mentioned what Nick Ház aptly has characterized as mergers. In planar photography we have tried certain standard conventions that ordinarily indicate the third dimension convincingly enough for most purposes. But once in a while we are left with a staid lady balancing a telephone pole on her head, or some such incredulous situation, and something has to be done about it. The speaker had a pair of before-and-after pictures showing how to avoid such contretemps. In the first picture a beautiful yacht apparently was balanced on a big rock. By slightly changing his viewpoint the artist had disengaged this merger and in his second print the yacht appeared to be in deep water at a safe

distance from shore. But he also "improved" his picture in other ways so that a cloud that floated serenely in the distance in the first picture had now come forward and draped itself around the mast of the boat. Although to me this looked like as bad a merger as the first, the lecturer did not see it so—and it was quite in keeping with the current accepted trend in picture making.

All these overcorrections are simply a form of exaggeration. Now far be it from me to deny that a certain amount of it adds to the entertainment value of conversation or pictures. Skillfully handled, exaggeration does no more than put emphasis where it belongs and thus becomes a legitimate aid in a presentation. (Like the habitual liar who lies even when the truth would serve his purpose better.)

Exaggeration has been used in art from time immemorial. I once saw a couple of cowpokes looking at an ancient pictograph on a canyon wall. They were arguing about what the thing was supposed to be. One claimed it was a bear, but the other thought it looked more like a pig. The first one said, "Look, this thing has five legs. No one ever saw a pig with five legs, so it couldn't be intended for a pig. I still say it is a bear." This logic seemed irrefutable; they had to agree it was a bear.

But I am still wondering what the prehistoric artist really meant. Was he commemorating the killing of a pig at a time when he was so famished with hunger that the only way he could show graphically how much of a feast all this meat in one hunk looked to him, was by putting three hams on it? Or had he just emerged from such a desperate encounter with a bear that it really seemed to him that the animal must have mauled him with five legs?

Anyhow, he was putting the emphasis where he thought it belonged, and even now any artist worth his salt would do the same. But he can overdo it to the point where it becomes very confusing and we say he is such a damn liar that we don't believe a word he says anyhow. My plea is for a little more moderation and discrimination.

We might as well be patient. We have to live through this present craze for overcorrection. Though art has gone off on many tangents before, it always has swung back eventually to its true course, taking with it all that was valuable in the fad and discarding the surplus.

YOUR MOVIES NEED...

CINEMATIC SPICE

Text and photographs by Ormal I. Sprungman

A few simple devices will enable any movie to rise above the commonplace in presentation as this veteran film-maker demonstrates.



THERE'S A LOT to be said in favor of straight filming. But even a moviemaker cannot live by bread alone. His cine fare needs spice, and it's the occasional out-of-the ordinary movie trick which peeps up his footage and brightens home movie screenings.

Each summer, for almost a decade now, I have been privileged to help Ducks Unlimited, an internationally-known conservation organization, to prepare a 16mm color movie. Such a film unfolds its work in the Canadian breeding grounds in reclaiming once drained areas, building dams, dikes and ditches, and flooding new marshes to create better nesting areas for North American waterfowl. But simply picturing ducks on water, in their nests or on wing is hardly enough.

Animated maps and charts are often used to tell the

Above, filming the animation of dike lines on a map as described in the text. A glass overlay above the map has the lines painted on and they are slowly scraped away as the film is exposed a few frames at a time. The camera is inverted during this operation and when the processed film is turned end for end, the map on the right seems to spring into life with the lines of the dikes growing on the map. This same technique could be used to show the route of a summer trip or any other required animation.



Here is another instance of the same technique as that across the page. The migration routes are painted on glass and gradually chipped away as the inverted camera exposes two frames at a time. Both are from a Ducks Unlimited film.



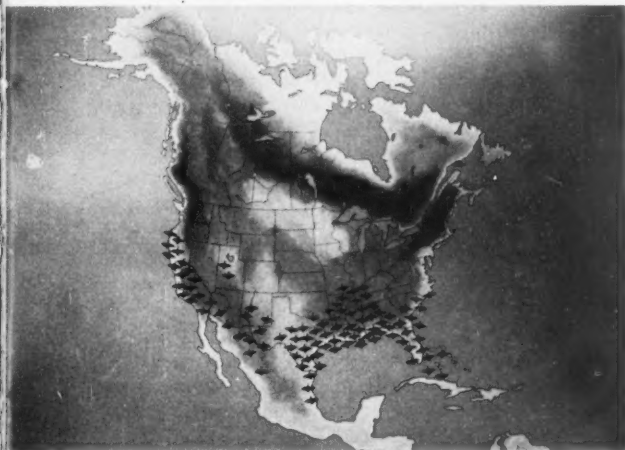
story more quickly and effectively than the actual filming out on location. For instance, in filming *Lucky Ducks* a couple of years back we wanted to show how dikes dug by Ducks Unlimited around the south shore of one of Manitoba's larger lakes prevented storm waters from sweeping down out of the north and flooding the lowlands and destroying spring nests. Because of the vast size of the lake, with its delta of myriad streams and marshes, it was impossible to fly high enough for vertical shots which would show the entire area and still be able to detect the dikes in the same scene. From the ground, only a small area could be seen and most water bodies were hidden by vegetation.

This problem was overcome by filming a map—with animation. A sheet of clean glass was placed over a blue-

line map of the area. Block letters were laid on the glass to spell out the name of the lake, and with red oil colors the dikes were painted in position on the glass. The movie camera was mounted on a tripod and pointed down on the map and glass laid out on the floor.

Since we wished to animate the red dike line, we shot the map and glass with top and bottom reversed (like filming a normal scene with an inverted camera). Stop motion was used by exposing two frames at a time, scraping off $\frac{1}{8}$ -inch of the end of the dike line, exposing two more frames, and so on, until the line itself was completely obliterated. After processing, the film was reversed end for end and projected to show the red line mysteriously painting itself with an invisible brush over the map.

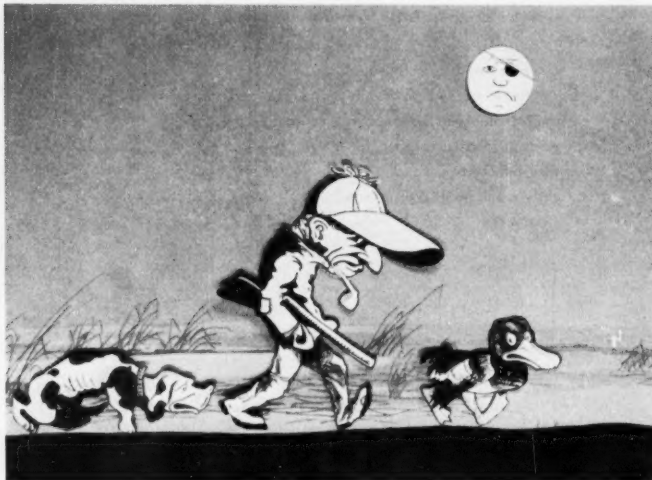
Below are the first and final shots from another animated sequence. In this, outline figures of the ducks were cut from black paper and slowly moved north as the camera, right side up this time, exposed a few frames at a time. Assistants moved the ducks with eraser-tipped pencils to avoid disturbing the formation. Similar effects can be adapted for many uses for both amateur and commercial films.





Above, assistants manipulate the cut-out figures for a single-drawing animation. The camera is mounted above them and they are carefully moving the figures to coincide with single-frame exposures.

Below is the single-drawing animation which the assistants at left are manipulating. The figures are cut from stiff cardboard and the limbs jointed with concealed staples as the author describes in the text.



CINEMATIC SPICE

When a glass overlay is used, overhead lights should not be allowed to reflect from the surface. Photofloods should be placed low at each side so that reflections are not picked up.

Since the shutter speed when shooting a single frame is approximately one-half that when shooting at normal 16 frames-per-second, we fade in on the animated map, then close down the lens one aperture stop for the animation shots. For the fade-out, we return to 16 f.p.s. and the same aperture used on the fade-in. Computation is similar for shooting at sound speed.

Animation of jointed figures has long been a popular cine pastime for advanced moviemakers, in addition to proving its worth in commercially-made films. In one of the Ducks Unlimited features made in past years we wanted to show a dejected hunter and dog, led by a lone duck, walking from left to right across the scene. Here it would have been far too costly and time-consuming to prepare individual drawings to be filmed in cartoon-style.

Instead, the torso of the dog, man and duck were first outlined on heavy cardboard, painted in bright colors and cut out with a sharp knife. The limbs, cut from the same material, were affixed to the bodies with paper fasteners. Staple heads were touched up with paint to fit body camouflage.

A painted marsh scene provided the background on which the jointed characters were placed. The camera was mounted vertically overhead, shooting down on the setup lighted with low photofloods. To show forward movement, legs were moved in normal walking-style, approximately 1/16-inch for every two frames exposed. To

increase speed of walking and distance covered, the length of each limb movement was increased.

At least two assistants are advisable when operating two or more jointed figures, and special care must be exercised in handling to avoid accidental jarring of any one figure which might spoil the entire animation and require a retake. To add a final humorous touch, a sad-looking moon with bandaged eye is shown rising up out of the marsh. It tags along with the figures—then wearily sets into the marsh at the right.

Certain waterfowl species follow definite flight patterns in flying south each fall and migrating north in the spring. To picture this heavy movement by means of animation, a special die was prepared showing the silhouette of a duck with neck and wings outspread. Several hundred such silhouettes, stamped out of black cardboard, were massed in the south over a colorful outline map of the United States. Again, the camera was mounted vertically over the map laid out on the floor while several assistants moved each duck approximately 1/16-inch for each two frames exposed. Because of the diminutive size of the cutouts, the eraser end of a long pencil was used to propel each bird northward. Many hours of painstaking animation were required to produce a short but effective sequence lasting less than half a minute on the screen.

Crossed flags and the Ducks Unlimited crest, showing a mallard in flight, have been used for the introductory titles of past DU movies. To add variation as well as animation, it was decided to steal some thunder from the M-G-M lion and utilize a "live" duck head protruding through a circular hole cut in the black title card on



which flags of Canada and the United States were crisscrossed. A duck head paperweight, its head repainted bright green, and bill, brilliant yellow, served the purpose perfectly and added a comic touch. With crosslighting over the face of the title card, the duck's bill and head emerge slowly and cautiously from the shadowed opening, look slowly to right and left, and then straight at the camera. With a lap dissolve, the title—*Ducks Unlimited Presents*—fades in, and is followed by the main title of the year's new feature film.

To manipulate the duck head from behind (as illustrated), the flags were wired to the face of the title card which in turn was taped to an inverted footstool. The metal duck head was animated by an assistant who inserted his hand in a black sweater sleeve so that the fingers and background would not be evident.

The same effect was used with *The End* title. As *The End* fades in on the screen, the mallard again sticks out his head and bows amusingly at the audience for the fade-out. Although we used a painted duck head, a live duck could easily have been brought into the picture but not so easily manipulated.

Any of the animation ideas described or illustrated in this article may be adapted to fit your personal filming plans. Ducks Unlimited holds no copyright on them. Try working a trick or two into your next feature. You may be amazed at the audience reaction to such cinematic spice. If your camera is not equipped for single-frame exposures, you can have it rebuilt in most cases for animation work. Sometimes, just a quick down-up touch of the camera trigger will expose a frame or two in a pinch.

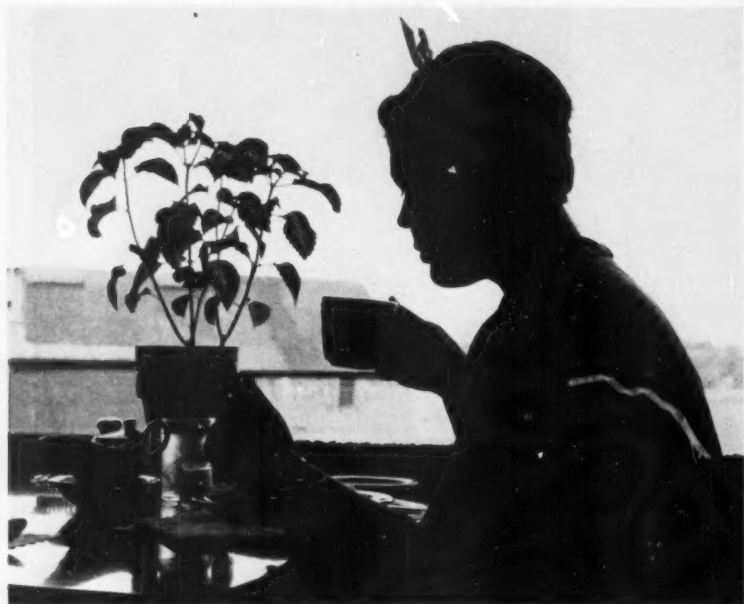


Above, left, preparing an animated title for the same film as the previous illustrations. The bottom section of the board, with the word "Presents," is hinged so it may be swung up into view at the proper frame. Above right, Angus Shortt, ornithologist and waterfowl artist, prepares to aid in the animation of the title. He holds paperweight duck head which peers through a hole in the tile board. Note that board is taped to footstool for support.

Here is the camera-eye viewpoint of the way the animated opening title was filmed. The assistant, his hand and arm covered with black, maneuvers the duck head through the title board on which are pinned the Canadian and American flags. Such touches of animation aid in taking a movie far out of the commonplace.



MONTHLY PRINT COMPETITION



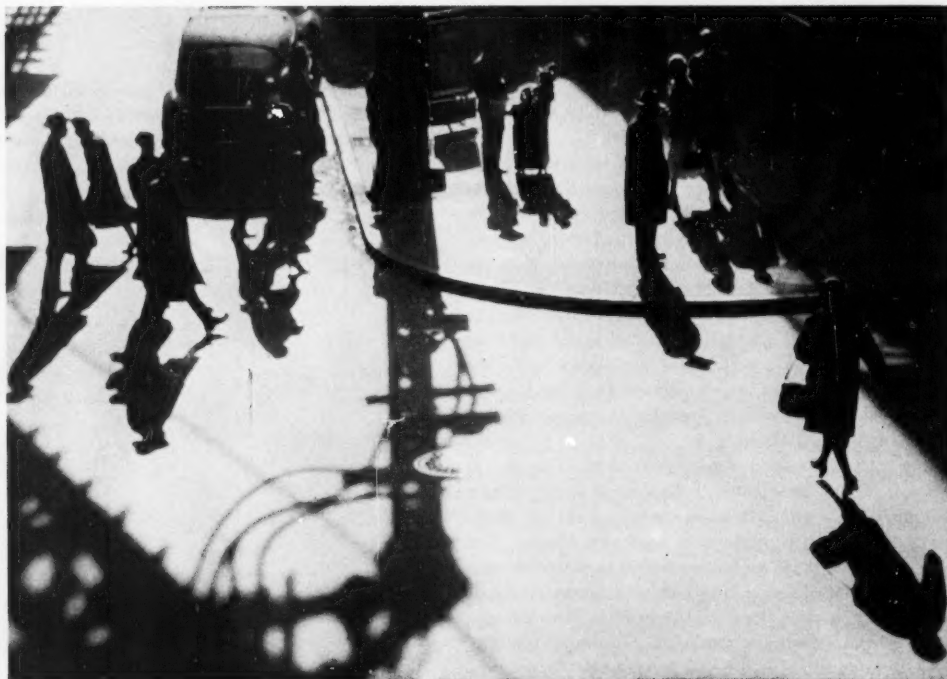
WINNING SHOT in this month's competition, *Taos Indian*, belongs to Eugenia Buxton of the Memphis, Tenn. Camera Club. It was taken with a Speed Graphic with Optar lens and exposed 1/10 second at f/22.

Mention goes to L. Lajos Incze of Lewiston, Me. and the Androscoggin Camera Club, for *Breakfast*, taken with an Auto Rolleiflex, 75mm Tessar f/3.5 lens, at 1/100 second, f/11.

Third Avenue also receives mention. It was taken by F. B. Grunzweig of Elmhurst, N.Y., and the United Nations Camera Club, with a Rolleiflex, 1/100 at f/16.

Photographer Buxton used Super Pan-chro Press B Film developed in Microdol and printed on selenium toned paper. Mr. Incze's film was Super-XX printed on Kodabromide G3. Mr. Grunzweig's film data is unknown.

"*Taos Indian*" by Eugenia Buxton, this month's winner is at the right. "*Breakfast*," by L. Lajos Incze, above, and "*Third Avenue*," by F. B. Grunzweig, below, each receive mention.





NOTES AND NEWS

Copy Machine Has Two Functions

Tru-Copy-Photo-Dual Model makes burn-in plates up to 11x17 as well as copies up to 18x24 of typed, printed, written or drawn material. Ten minutes are required for burn-in plates, three to five seconds of exposure for copies. Features include unbreakable glass top, removable filter, two timers, high compression cover. Price, \$185. Additional information is available from General Photo Products Co., Inc., Chatham, N.J.

Telephoto Lenses for 8mm's

Three imported *Elitar* telephoto lenses for 8mm cameras have fully color-corrected lenses in chrome finished brass barrel. All have a focusing mount and are 1½ inches in length. The f/3.2 lens is priced at \$17.95; f/2.5, \$26.95; f/1.9, \$38.95. Additional information is available with mention of *AMERICAN PHOTOGRAPHY* from Interstate Photo Supply Corp., 28 West 22nd St., New York, N.Y.

Color Photographers' Film Punch

Designed for color print makers, *Kodak Matrix Film Punch* assures quick and accurate registration of matrices in dye transfer prints.

The punch perforates the matrix film and re-perforates pan matrix film for use with Kodak register boards. While perforations to fit both large and small register boards are punched simultaneously, the extra perforation is not, however, an impediment when working with either size board. The film punch will be available from Kodak dealers at \$41.50.

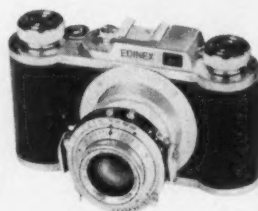
Booklet on Auxiliary Lenses

Designed to answer both the professional's and amateur's questions concerning auxiliary lenses, a handy 12-page brochure, *More About Spiratone Lenses*, is available at no charge from Spiratone, 32-34 Steinway St., Long Island City, N.Y., if *AMERICAN PHOTOGRAPHY* is mentioned.

Edinex, Presto Imported

Products of Gebr. Würgin of Wiesbaden include the 35mm Edinex which now has M-F flash synchronization as well as f/2.8 Steinheil Cassar coated lens and is priced at \$39.95 plus tax. Its Prontor-S shutter permits synchronization with a time delay of zero, 5 or 20 millisecc. for flash shots. Shutter speeds from 1/300 to 1 sec. can be synchronized with regular and SM type bulbs. A direct view finder and self-timer are also incorporated in the camera.

A folding camera, the 2¼x3¼ Presto is also equipped with M-F flash synchronization, and like Edinex, has Prontor-S shutter with the same time delays for flash exposure. Its lens is Schneider coated f/4.5, it has a built-in self-timer, makes 16 exposures on 120 film, is designed with both body shutter and cable socket release. Price, \$41.95 plus tax. Mention *AMERICAN PHOTOGRAPHY* when requesting details from Camera Specialty Co., 50 West 29th St., New York 1, N.Y.



Slides Mounted in Single Step

Holson Binders, Inc. now manufacture an unbreakable heat resistant plastic stereo slide mount which handles a complete roll of 35mm film in less than 10 minutes.

Heating, pasting, aligning and sealing processes have been entirely eliminated in the new slide mount. As each frame is cut it is slipped into a durable, transparent acetate envelope which protects film against dirt, dust and scratches as well as cuts down the fading of color dyes. The envelope is then inserted in a slot

on the mount and the film, completely mounted, is aligned for viewing as well as projecting. While being locked in place, the film may be quickly and easily removed if desired.

Each slide mount is equipped with a large, white label for identification purposes. Packages, including acetate envelopes and instructions, will retail, in packages of 16 for \$2.48; 100, \$15.

Plastic Box Protects Filters

A push button filter selector, *Select-A-Filter Safe*, quickly produces the filter the photographer needs with the touch of an automatic resetting button. The device, manufactured by Tiffen Mfg. Corp., is constructed of durable transparent plastic, is snap closing and comes with a molded strap loop for attachment to camera case or gadget bag. Filters are held firmly in place by tension springs and are separated from each other by molded grooves. In addition to six filters, *Select-A-Filter Safe* holds a lens shade and adaptor ring. Price: Series No. 5 (3-7/8x1-11/16x2-5/16 inches), \$2.50; Series No. 6 (4-1/2x1-11/16x2-1/2 inches), \$2.75.

Tourist II Features New Shutter

A development for the Kodak Tourist line of cameras is a new cocking-type, with rim-setting speed ring shutter—the Kodak Flash 200—for Kodak Tourist II with Anaston f/3.6 lens. Shutter speed is twice as fast as with the 1/100 Flash Diomatic shutter formerly offered with the camera. Speeds range from 1/25, 1/50, 1/100 and 1/200 in addition to bulb setting, and are synchronized for Class F lamps up to 1/100, and for Class M lamps at 1/25.

The camera's Anaston lens has diaphragm settings of f/6.3, -8, -11, -16, -22 and -32 in click stops and it focuses from 3½ feet to infinity. Other features of the camera remain the same and series VI adapter rings (1¼-inch for all Kodak combination lens attachments) will be used.

Tourist II will be available from Kodak dealers at \$46.25, federal tax included.

Retouching Medium Dopes Film

Super 5 Ways, a new dope for glossy paper as well as film, should be helpful to photographers in retouching work. The manufacturer says 20 percent of retouching time is saved by use of this medium which supports the hardest leads without cutting-through and which is capable of taking oil as well as colored pencils. *Super 5 Ways* is easy to apply—its screw-cap container is equipped with a glass rod; and it is economical—the average negative needs one drop of the medium. Becoming part of the film the medium does not leave a tacky, dirt-collecting surface, and it readily takes lead on either side of the negative. Another characteristic, its slightly matt surface, breaks up the pencil lines into tiny dots for invisible retouching. Sample bottle (enough for 100 4x5 negatives), 25c. Other prices will be quoted with mention of AMERICAN PHOTOGRAPHY when writing Colograph, P.O. Box 41, Mercer Island, Wash.

Pathe 16 Will Be Available

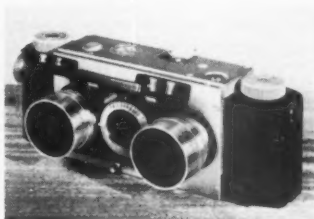
Director Products, Inc., 570 Fifth Ave., New York City, announce that a new model of the *Pathe 16* has been shipped to this country from France. Featured in the new version of the already well-known camera is a full-frame focusing device that enables the photographer to sight directly through the lens he is using; a governor mechanism for control at all speeds throughout the spring run; a simplified threading mechanism; new type pressure pad, and newly located release button. In addition the variable shutter control has a buzzer which sounds warning if the photographer attempts to shoot without opening the shutter.

Pathe 16 has six frame speeds up to 80 frames per second as well as a three lens turret which will use any one of the three lenses without the turret's projecting beyond the body of the camera. A long-run spring motor permits 30 feet of film to be run at one winding. *Pathe's* single frame device may be used for animation as well as for either instantaneous or time-exposed stop-motion. Retail price, without

lens, \$395 (no federal tax). Please mention AMERICAN PHOTOGRAPHY when writing for additional information.

Graflex-Polaroid Back

Designed for the business as well as photographic world, Graflex Polaroid Land Back which uses standard Polaroid film is suggested to have a diversity of uses from recording documents to providing on-the-spot proofs for checking lighting techniques or composition. The attachment fits any Graphic camera equipped with a 4x5 Graflok back; it produces 3¼x4¼ black and white pictures using the range of Graphic features such as extended bellows, rising and tilting front, etc. Price, \$77.50 from authorized Graflex dealers.



Enteco Lens Attachments

Enteco Industries, Inc. announces two lens attachments, one designed for the 8mm Revere "Fifty" camera with 12.7mm f/2.8 Revar lens and the other for the Stereo Realist camera.

The first, an adapter ring is slip-on type. It accommodates Series V filters and lens hoods. The second is a set of two combination hood and filter holders that will fit any lens of the Stereo Realist camera. Accommodating Series V filters and supplementary lenses these have a machining and slotting operation that permits snap-on fitting while the filter or supplementary lens remains plane-parallel to the camera lens.

The adapter ring is listed at \$1.15; combination lens hood and filter holders, \$4.50 per set. Literature will be sent at

no charge if AMERICAN PHOTOGRAPHY is mentioned when writing to Enteco, 610 Kosciusko St., Brooklyn 21, N.Y.

Heavy-Duty Solution Balances

Capable of weighing relatively large amounts of material, Ohaus solution balances will doubtless be of interest to the amateur who in his darkroom work needs to measure accurately in terms of pounds. The incorporation of self-aligning bearings in the balances is a feature that improves sensitivity by reducing friction thus lengthening the life of the balance. Full contact with the knife edges, constantly assured, provides even distribution of wear over them. The balance has precision tool steel knife edges, heavy cast-iron beam and graduated beams of relief etched stainless steel. While the rear poise engages into accurately milled notches on side bars of stainless steel at each graduation, a tare poise has a thumb screw to allow for repetitive weighing. An empty container can be counterbalanced by the tare beam to permit determination of the net weight of solutions.

Ohaus balances are manufactured in metric and avoirdupois standards or in a combination of both as well. Further information and free literature will be sent upon request and mention of AMERICAN PHOTOGRAPHY. Ohaus Scale Corp., 1050 Commerce Ave., Union, N.J.

Lightweight All-Metal Tripod

Graflex announces an all-metal tripod measuring 61 inches when extended, 23 inches closed and weighing a little over 4 lbs. for ease in handling and in traveling. It will sell for \$34.95. A 12-inch reversible sliding centerpost adjusts the tripod's height and permits shots from many angles. The legs are locked, not with a clutch, but by means of large, coated non-binding screws said to prevent loosening by vibration. Skidding is eliminated by use of rubber feet that fit over the bottom of the legs which are adjustable either from the top or bottom of the section.

NOTES AND NEWS



12-Inch, 35mm Lenses Imported

• A 300mm (12-inch) f/5 "C" coated Astro-Fernbildlinse has just been introduced to this country and is available for all models of Kine Exactas and Contax-S cameras. The lens has a focusing range from 13 feet to infinity and lens stops of f/5 to f/22. It is finished in black wrinkle and satin chrome.

• Also available in the lens field is the Astro-Berlin f/2 series 35mm Gauss-Tachar coated lenses. These, in 25, 32, 40, 50, 75 and 100mm focal lengths, are all in Eyemo and similar focusing mounts.

Descriptive literature and prices will be sent upon request by Sterling-Howard Corp., 561 E. Tremont Ave., New York 57,

N.Y. if AMERICAN PHOTOGRAPHY is mentioned.

Triangle Lighting Kit

Designed to make low-cost professional lighting available at home, the Victor Floodlight Kit retailing at \$9.95 contains three complete clamp-on units. For main lighting there are two deep-necked 10-inch reflectors with No. 2 lamps; for back or high lighting there is a cone-shaped reflector and No. 1 lamp. The units meet heat insulation requirements, according to the manufacturer, James H. Smith & Sons, Corp., Griffith, Ind.

Weltax Is Reintroduced

The German Weltax rollfilm camera has again put in an appearance and is available in two shutter and lens combinations. The photographer has a choice of 12 2¼x2¼ or 16 1⅝x22¼ pictures on 120 film, says the manufacturer, and uses optical eye-level view finder with adjustable parallax compensator. The shutter release located on top of the camera body operates with finger tip pressure. Price, with a coated Meritar f/3.5 lens in a Prontor-S shutter, 1 sec. to 1/250, \$59.50;

with "T" coated f/3.5 Zeiss Tessar in a Compur rapid shutter, 1 sec. to 1/400, \$99.50. Both prices include tax.

Reflex Price Reduced

Said to feature a fast, color corrected f/3.5 German anastigmatic lens with shutter speeds to 1/100 sec., the 2¼-inch square Penta Reflex is now available in this country at a reduced rate, according to the distributors, Sterling-Howard, 561 East Tremont Ave., New York 57, N.Y. This camera also has a self-erecting viewer hood with a magnifier for accurate focusing, a body release and double exposure preventor. It takes 12 pictures on 120 film. Descriptive booklets are available from Sterling-Howard if AMERICAN PHOTOGRAPHY is mentioned.

Sound Projector Booklet

A booklet describing the Kodak Pageant sound projector and its use in visual fields is announced by Eastman Kodak Co. In addition to discussing the merits of the projector in meeting the requirements for both small and large groups, for showing 16mm sound as well as silent films, the booklet also discloses various other features of the machine. Available without charge from the Cine-Kodak Div., Eastman Kodak, Rochester, N.Y., or from Kodak audiovisual dealers if AMERICAN PHOTOGRAPHY is mentioned.

Film on Projector Use

Operation and Care of the Bell and Howell Sound Projector, 16mm black-and-white, \$85. This instructive film is designed to show teachers and students how to thread and operate Bell & Howell projectors as well as to give useful information about machine maintenance including cleaning, lubrication, replacement of parts, etc. Available from Bell & Howell special representatives or from the International Film Bureau, Inc., 6 North Michigan Ave., Chicago 2, Ill.

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Dunn. This book is a real working manual covering all of the color processes in full detail. The author is a demonstrator to the trade and his familiarity with the actual working of each of these processes is completely spelled out for the reader. This is the new and completely revised Fifth Edition. **\$5.00**

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HOW TO CONTROL THE INTEREST

Text and Photographs by Jonathan Little

The author points out that each part of a picture has a role, and presents four ways of organizing these components to achieve better interest.

WE OFTEN SPEAK of the *center of interest* in a photograph, but seldom mention the *balance of interest*, although the latter is the more important one.

The success or failure of a picture often depends on the proper balance of interest, rather than on the center of interest. What is the difference between the two? *The center of interest* is the part of the picture which first attracts the eye of the viewer and then holds it for a while before the eye can roam over the rest of the picture. *The balance of interest, on the other hand, controls the movement of the eye over the picture area.* The eye of the viewer will fall upon the center of interest first, then it will move to the second most interesting part of the subject, then to the third, and so on until it has covered the whole surface of the photograph, when it will return to the center of interest.

This motion of the eye is mostly unconscious, the viewer is not aware of it, but the maker of the picture must consider it and control it by establishing the proper balance of interest. We mentioned above that the eye of the viewer falls upon the center of interest first, then wanders off, touching on all parts of the picture *in the order of their importance*, finally returning to the center of interest. This is the ideal situation and the maker of a photograph should direct the eye of the viewer to do just that. However, in many pictures the situation is different.



The author says the picture above has a good balance of interest, while this does not. Read the article for his reasons.

There is no one part of the picture which would call for immediate attention, the eye jumps from one part of the image to another (regardless of the importance of those parts) until finally it gets tired and finds rest by not looking at the picture at all.

The difference between the ideal situation and the one just described is the proper balance of interest. Each and every part of the pictures we make has a definite role: some parts are occupied by the subject or subjects, other parts establish the mood or locale, still other parts add to the effect of the picture. While all parts of the picture have a role, the importance of their role is different in most cases: usually the subject (or a portion of it) is the most important part, other parts occupy second place, third place, etc. Now, when we make a picture we must establish a proper balance of interest, we must make the picture in such a way that its most important part should attract the eye of the viewer first, then the second most important part should take over, then the third, and so on. If there are several equally important parts in the picture the viewer should have a choice which one to look at first, then the second (and maybe third) equally important parts should attract his eye with equal force.

IN YOUR PICTURES

In order to be able to properly guide the attention of the viewer of our photographs we must know what will attract his eye. There are no definite rules, but the following may serve as a guide:

In an average picture usually the lightest part gets first attention. If the whole image is very light then the darkest part will attract the eye.

Lighting contrast or subject contrast will call for attention. If any part of the picture has a striped or checkered effect it will attract attention. The effect may be the result of lighting or of the makeup of the subject itself.

Size calls for attention. Everything being equal the larger subject will attract the eye first.

An unusual shape or contrast in shape will direct the eye toward itself. For example, if there is a square subject among circular ones (or vice versa) it will call for attention, everything else being equal.

The eye will be guided along lines in the picture, both true and imaginary lines. If lines lead into several directions and lead to a dead end the eye will follow each of them and at their end will be forced to return into the picture, causing an uncomfortable feeling. Lines are helpful in guiding the eye of the viewer if they lead from one subject to another in the proper order.

This short guide should enable you to plan the balance of interest in your pictures properly by giving your most important subject (center of interest) and the most eye-attracting qualities in tone, shape, size and pattern and to deprive the less important parts of these qualities.



4

Beautiful subjects, both, but the interest in the picture above is harmed by the bad light balance, the one on the right creates a better effect.



3

Proper planning will help to establish a proper balance of interest in your photographs.

The balance of interest may be (and usually is) established when a photograph is taken but it can be changed, if necessary, during enlarging. We will go through the methods which enable us to do this. But let us look at a few photographs first and see how the balance of interest works in practice:

The balance of interest is good in Illustration 1. The eye is readily caught by the head of the pelican, then it runs off to each wing, stops at the feet for a moment then returns to the head.

The balance of interest is rather poor in Illustration 2. The eye is caught by the white bow of the ship but, since there is nothing to see there, it is forced over to the tower, then to the palm trees and to other details in a tiring merry-go-round. This photograph has a disturbing, irritating effect on the viewer.

Illustration 3 is an example of good balance of interest. The face is the first attraction, then the eye is allowed to follow the figure all the way down, from where it returns to the face. The motion of the eye is rhythmic, not at all unpleasant.

The subject of Illustration 3 was a pretty girl. You may have the impression that the picture is "easy to look at" because of the subject rather than the well



5

It is hard for the eye to find a predominant center of interest in this print because there is not a good balance of interest between the figure of the man and the eye-attracting bushes at the right. It would be better if one were dominant.

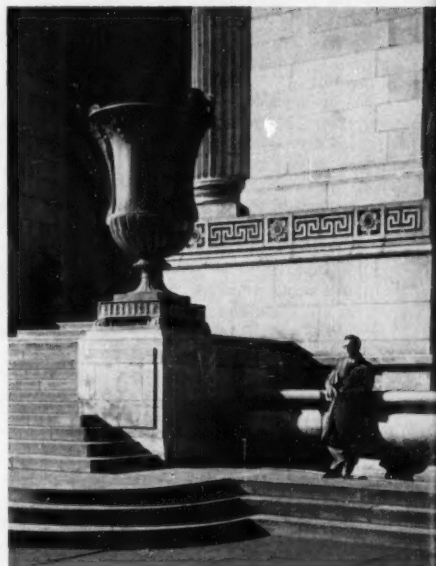
CONTROLLING INTEREST

established balance of interest. Well, the subject of Illustration 4 is equally pretty yet the picture has a disturbing quality as a result of a poor balance of interest. The observer's eye is first caught by the lightest portion of the dress, from where he must force it up to the face, then jump over to the legs where it is caught and distracted by the scattered spots on the water. There is no rest for the eye, it must keep on moving in a disorderly manner which finally will tire the viewer and will make him have a bad opinion of this picture (consciously or unconsciously) in spite of the pretty subject.

The proper balance of interest is sometimes sacrificed for some reason. In Illustration 5, for instance, the snow-laden branches on the right side attract as much attention as the man with the shovel. As a result the eye keeps on jumping from one to the other. A better balance of interest could have been established by eliminating the branches from the right side, but they are necessary because they add to the wintry mood of the picture. This photograph is a compromise as far as the balance of interest is concerned, but not a happy one because a picture with a poor balance of interest never has a pleasing effect.

As we see in these examples the effect of any picture greatly depends on how well the balance of interest is established in that picture. The person who is viewing the photograph is influenced in his opinion about it by

6



Here is a print from a full negative. There are four areas in it which attract the eye, the sun-drenched wall, the urn, the steps and the human figure. See across the page for possible croppings.

Below left, the print (shown in full on the opposite page) has been cropped at the top and bottom. The eye now follows a more regular triangular pattern. Below, center, the print has been cropped through the urn and the attention centered on the man. Finally, in the third print, the bottom has been trimmed so the urn becomes the dominant element in the picture.



7



8

9



the proper (or improper) balance of interest, although he may not even know that such a thing exists.

It may have happened to you that one of your pictures which should have been a hit was unsuccessful for no apparent reason. The subject was appealing, the situation interesting, the picture was beautiful, yet it "just didn't click" with the audience. If you re-examine such pictures in the light of this balance of interest most likely you will find that improper balance of interest has made the picture uncomfortable to look at and caused its failure. Reprinting such a picture with improved balance of interest might make it successful.

Now let us return to our original subject: How can we control the balance of interest during enlarging?

We have four different means for changing the balance of interest in our prints during enlarging. Let us take them one by one:

1. Changing the balance of interest by change in composition. When we compose our picture (decide what should be included in the print) we have an occasion to establish the balance of interest as we want it. We do this by eliminating the parts which would upset the balance of interest. We can emphasize or subdue parts of the picture by changing their relative place within the picture area through change in composition.

An example will make this easy to understand. Illustrations 6 through 9 are prints made from the same

negative. Let us study these prints and see how the change in composition has changed the balance of interest in each print. Illustration 6 is a print of the full negative. It is a well rounded composition, there are several areas to draw attention: the large light wall area at the upper right, the big urn, the stairs at the bottom left and finally the human figure. Each attracts the eye with about equal force and keeps it on the move.

In Illustration 7 the top portion was cut off, reducing the light wall area on the upper right side. A small portion was removed from the bottom, too. As a result only three areas of equal attraction remain and the eye is traveling from one to another in a triangle, which is a more rhythmic motion. This print is more pleasing to look at and we could accept it as the final print having the proper balance of interest. But let us continue for the sake of experimenting and see what happens to the balance of interest if we keep on changing the composition.

In Illustration 8 another portion is removed from the top of the picture cutting the urn in half. Now the man becomes the dominating element, the other parts secondary. The balance of interest has greatly changed by this change in composition.

In Illustration 9 we change the composition the other way: cropping the picture on the bottom cuts the man in half. As a result the urn becomes the most important



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CONTROLLING INTEREST

subject, all other elements become secondary.

These examples demonstrate how even a slight change in the composition of a picture can change the balance of interest, which gives us one means to change the balance of interest during enlarging.

2. Changing the balance of interest by changing the tones of the picture. Every photograph we make is built up from a series of tones. Changing the tones of a picture will also affect the balance of interest. *Making a print light will emphasize the dark parts of the image.* Illustration 10 is a portrait. There is no outstanding center of interest. Making the same print considerably lighter as in Illustration 11 has placed emphasis on the dark parts: the eyes, lips, nostrils and hair.

Making our print dark will emphasize the light parts of the image. Illustration 12 is a landscape. The picture appears to be about the same as the original scene ap-

The balance of interest may be altered by printing lighter. Interest is added to eyes and mouth by additional contrast.



11



13

The balance of interest may be altered by printing darker. The print below, left, is just about as the scene appeared to the eye. Printed darker, right, a considerably greater effect is gained as better balance of interest.



12



14

peared to the eye. Making the print considerably darker as in Illustration 13 has emphasized the lightest portion of the picture.

In the examples above we have changed the tones of the pictures by changing the overall exposure of the prints. If we wish we can change the tone of a print locally by dodging or burning in. For the picture shown in Illustration 14 we wanted to place more emphasis on the eyes. To do this we simply made the face darker and dodged the area around the eyes for part of the exposure to keep it lighter (Illustration 15). The result is more emphasis on the eyes, just as we wanted it.

From the examples above we see that if we change the tones of a picture (either locally or overall) we will change the balance of interest at the same time.

3. Changing the balance of interest by diffusion. Diffusing part of the image will subdue that part, placing



15

Printing for better balance may be selective as well as over-all. Here, the print has been burned in except for the eyes which are held to a normal tone and thus considerably emphasized.

the emphasis on the portions which are left sharp.

To do partial diffusion we wrinkle up a sheet of colorless transparent cellophane into a ball then straighten it out again. We hold this wrinkled cellophane under the lens of the enlarger at about $\frac{1}{4}$ of the distance between the lens of the enlarger and the easel. To get the sharp parts we cut a hole in the cellophane allowing the light from the enlarger to pass through the hole to the parts to be left sharp. The cellophane is moved up and down and slightly sideways during exposure. Diffusing with a cellophane decreases the image contrast of diffused parts.

Illustration 16 is a pleasing portrait but the balance of interest is improper. The eye is dragged from the face and is kept on the move by the busy surroundings. In Illustration 17 the surroundings were diffused with the use of a wrinkled cellophane and the face was printed sharp through a hole in the cellophane. This picture has

16



Diffusion may be used to alter interest. The confusing background is altered here with the important element kept sharp.

17





18

The print at left suffers from too great a pull between the stone bird and the girl's face. The conflict between them is too great for it to be a satisfactory picture.

The print at the right has been selectively fogged to reduce the subordinate interest. Full directions for this type of print control are contained in this article.



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the proper balance of interest. The face attracts attention first then the eye makes a quick circle around it, returning to the face since there is no other attracting element left to fight the effect of the face.

4. Changing the balance of interest by fogging the image. In the previous example we subdued parts of the image by diffusion. It happens sometimes that to establish the proper balance of interest we have to subdue certain parts of the image, but in the same time we want to retain sharpness in the subdued area. We can not use diffusion, of course, because it would spoil the sharpness. Instead we simply *fog* the part of the image which is to be subdued. By controlled fogging we can subdue any part of the image to any desired extent. To get just the effect we want we must control the *extent* and the *darkness* of the fogged area.

To do the fogging we remove the negative from the enlarger, stop down the lens as far as it goes and expose the enlarging paper to the raw light of the enlarger. This raw light will be rather weak because the lens is stopped way down and therefore it will be easy to control. The fogging exposure (darkness of the fogged area) must be established by making test-strips. When we know how much fogging exposure is necessary to get the effect we want we replace the negative in the enlarger, open up the lens to the regular printing aperture (whatever it was) and expose the print in the usual way, *but do not remove it from the easel after exposure.*

Remove the negative, stop the lens all the way down and give the proper fogging exposure according to the test-strip previously made. During this fogging exposure we must protect the area which is to remain unfogged by

CONTROLLING INTEREST

holding a dodger above it during the fogging exposure. The dodger must be moved up and down to achieve blending around the edge of the fogged area. Since we can not see the image during the fogging exposure we should mark on the margins of the easel how far the area to be protected with the dodger extends. These marks will help us to keep the dodger over the proper area.

With the above method we have complete control over the darkness of the fogging (through length of exposure) and its extent (by dodging).

In Illustration 18 the girl is overwhelmed by the giant stone eagle, the balance of interest is the opposite from what the photographer wanted. In Illustration 19 the eagle was subdued by fogging, the girl becomes dominant but the basic elements of the picture remained undisturbed, only the balance of interest has been reversed. Diffusion would have spoiled this picture completely.

The four methods we have described for changing the balance of interest during enlarging can mean a great improvement in your photography if you are willing to work at it. Just reading this article will not be sufficient. You must study it, read it several times, understand what the balance of interest is, realize its importance and then actually practice the four methods using your own negatives. Once you are familiar with these methods you may mix them, use more than one method on the same print. For instance you may find that you can best establish the balance of interest in a certain photograph if you change both the composition and the tone of the image and also diffuse part of the picture.

After sufficient practice you will master the techniques and as a result you will be able to control the balance of interest at will in all your pictures.

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THE LATENT IMAGE

by Dr. Joseph Friedman

A series of articles on the history and theory of the developable photographic image

BEFORE the gelatin plates could replace collodion a number of improvements had to be made. Until the making technique was developed to yield greater speeds than collodion there would be little hope for replacing the older procedure. But the early speeds were not quite that good although they were close enough behind so that a small group of experimenters continued their work in this field. The first step was made by J. King. He suggested that the soluble salts in the emulsion be removed. His emulsion was prepared with an excess of silver nitrate present, but a dialysis lasting three to four hours probably removed most if not all of the excess together with the other nitrates formed in the process of preparing silver bromide (*Brit. Jour. Phot.*, Vol. 20 [1873], p. 542).

Two pages further along in the same issue (p. 544) another contributor came much closer to home. This was J. Johnston. His procedure was to dissolve separately silver nitrate and soluble bromide in gelatin solutions with the bromide present in excess. The two solutions were then mixed, cut into thin strips and washed. This has been adopted as standard procedure in emulsion making. It resulted in faster and better keeping plates, a great step forward.

The modern practice of forming the dispersion in a very small quantity of gelatin, then adding the remainder at a later stage, was also disclosed at this time by W. B. Bolton. In 1878, Charles Bennet disclosed the idea of emulsion ripening (*Brit. Jour. Phot.*, Vol. 25 [1878], p. 146). This was the last advance that was needed before gelatin bromide plates could be manufactured commercially. We find that in 1878 the firm of Wratten and Wainwright introduced gelatin bromide plates that were very sensitive (for that period) and of sufficient stability for foreign export.

The photographic emulsion as it existed in 1873 had one defect which retarded its usefulness to a great extent. This was the insensitivity of the silver halides to light other than blue and violet. This defect in silver halides was early discovered and mention was made in a previous article of the experiments of Carl Wilhelm Scheele and Senebier. The last named person did his work in a semi-quantitative manner. He disclosed that while it took silver chloride approximately 15 seconds to become discolored by the action of blue light, about 20 minutes were required for this to happen with red light, a factor of 80.

When the daguerreotype was introduced such experimenters as Draper, Herschel and Hunt immediately began to investigate the effect of the solar spectrum upon the sensitive surfaces. It was soon established

that only the blue and violet rays were active; all others recorded as black. With the advent of silver bromide collodion and gelatin plates the inquiry regarding the action of the solar spectrum was again investigated. Among the people making such an investigation was a chemist, Prof. Hermann W. Vogel, the same person who devised the iodide titration for silver ions.

The manufacturer of photographic materials had advanced to such a degree that halation became a prime factor. In order to reduce this to a minimum the manufacturer added dyes to the emulsion which absorbed the light and thus prevented it from reflecting back from the surface of the glass plate, giving rise to halation. Vogel used collodion dry plates manufactured by Stuart Wortley in England. These contained rubber, gallic acid and uranium nitrate as preservatives, and the dye corallin as an anti-halation filter. He made his exposure through a small prism using strong sunlight. Upon examination of the processed plates he noticed that he obtained a better recording of the green than he had ever before seen.

The increase in sensitivity was not very great, but Vogel was not misled. He immediately recognized that something added to the emulsion was the cause for the increased sensitivity. His scientific training led him to the conclusion that it was the dye corallin since that dye had a similar absorption in the green. Vogel, scientist that he was, immediately published his results in the *Berichte der deutschen chemischen Gesellschaft*, the official journal of the German Chemical Society, (Vol. 6 [1871], p. 1305). He continued his experiments upon color sensitization and in 1874 published a much more detailed account in Poggendorff's *Annalen* (Vol. 153, page 218). In this paper he added a number of other dyes with similar properties.

The Vogel disclosures were not accepted as readily as they might have been. Monckhoven repeated the experiments but obtained negative results, a fact attributed by Eder to his use of a much more powerful prism, hence a weaker spectrum. Since the increase in sensitivity was quite small, the use of a weak light source for the exposure reduced the observed effect to a point where it was vanishingly small. The great American technician, Dr. Carey Lea, also failed to obtain the desired results, possibly because he worked with glass filters. However, the French scientist, E. Becquerel, confirmed Vogel and at the same time disclosed the sensitizing action of the dye chlorophyll which carried the sensitivity range into the red, (*Compte rend.*, Vol. 79 [1874] page 185). This decided the matter in Vogel's favor.

With the advent of color sensitization the photographic emulsion came into its own. It now became possible to photograph anything which reflected light, whatever its color. Color photography first demonstrated as a possibility by Maxwell in 1859, then re-invented by du Hauron in 1862 and Cross in 1869, could not be practiced because no material was known which would yield images to green and red light. With Vogel's discovery this defect was removed and the science of reproduction moved forward. The year 1873 was but little more than a generation removed from 1839, the year that the latent image was disclosed. In that brief period a new industry and a new science was developed. During that same period the influence of Daguerre first rose to a high pinnacle, then waned into complete oblivion. Daguerre, the discoverer of the latent image, was therefore not the founder or father of modern photography. That honor belongs to Fox Talbot.

The proof for that statement lies in a simple question. Suppose Daguerre had never lived, would photography have developed as it had? Certainly. There is no connection either in ideas or in philosophy between photography as we know it now and the photography used by Daguerre. Now let us propound the same question with regard to Fox Talbot. We can safely say that had this eminent scholar not lived photography would not have existed.

Daguerreotype had a life of some twenty years, then quietly faded away. Calotype, introduced almost simultaneously, started slowly but developed continuously. To be able to print it better Niepce St. Victor discovered a procedure whereby he placed the Talbot emulsion upon a transparent base. We must remember that Niepce was working on the Talbot process when he made his improvement.

LeGray and Archer were working to improve Niepceotypes when they made their contributions. They replaced albumen with collodion. In the same manner we can trace a thread of connection between collodion and the gelatin emulsions of Gaudin and Maddox. Hence there is a direct channel leading from Talbotypes to modern emulsions. We cannot say that about Daguerreotype.

The present day emulsion is prepared in the following manner. To a warm solution of the halides in gelatin, there is added a solution of silver bromide. The bromide content of the halides is present in approximately a 25 percent excess. The gelatin content is maintained very low, approximately one-third as much gelatin as silver nitrate. These ratios are taken from a formula given by Carroll and Hubbard in their classic paper on the effects of after-

ripening, published in the *Bureau of Standards Journal of Research* (Vol. 7 [1931], p. 219).

The rate of addition, the temperature at the time of addition, the quality of the gelatin, the molar ratios of bromide to iodide and the exact cations used depend upon the individual's taste, the type of emulsion desired, etc. The silver may be added either as a neutral or as an ammoniacal solution, this again being determined by the personal taste and type of emulsion desired. The further treatment, however, depends upon whether the silver is added from a neutral or ammoniacal solution.

The mixing step is very important and really sets the emulsion characteristics. The emulsion does not have much speed or good contrast at this point. These characteristics are developed by several after-treatments, but the potential for such is created during the mixing stage. In the ammoniacal type of emulsion, the heating is continued for another half hour or so. This is the so-called ripening period, a technique that is not to be confounded with after-ripening. In the neutral or acid boiled type of emulsion this digestion is maintained for much longer periods of time and at higher temperatures. In all cases the optimum time is determined by trial and error, samples of the emulsion being taken out at stated intervals, coated and tested. So far the technique of emulsion making had not advanced beyond the disclosures made up to 1890. As mentioned above, the idea of using but a fraction of the gelatin during the initial mixing was due to W. B. Bolton in 1873. The use of an excess of bromide can be traced back to J. Johnston, also in the year 1873. Some years later the same Johnston introduced the idea of ripening the emulsion in the presence of ammonia. The procedures and controls were very carefully investigated in the intervening years producing a knowledge that enabled the scientist to follow with some intelligence what was taking place.

At the conclusion of the ripening of an ammonia type emulsion the secondary gelatin was added, the emulsion chilled, noodled, then washed free of all but a very small fraction of the soluble bromide excess. The neutral type of emulsion has the secondary gelatin added immediately after the mixing is complete, then it is digested for the requisite length of time. Up to the early twenties, this concluded the emulsion making technique. The coating operations followed. But there were many loose ends. It had been noted that the size of the grains grew appreciably during the ripening period, but this in itself was not sufficient to explain the increase in the sensitivity of the resultant product by 20 to 40 times. The growth in size of the crystals varied by a factor of 2 to 3. Besides, continued digestion would

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THE LATENT IMAGE

give a still greater crystal size but would incur a loss of photographic speed, a decrease in contrast and a tremendous increase in fog. It had been noted also that even in the case of the fastest emulsions the ripening did not end with the period of digestion at elevated temperatures.

Writing in 1926, Dr. Wentzel has the following to say: "By setting the completely digested emulsion, the ripening process does not end, but merely becomes slowed down, so that the speed of even the fastest emulsion increases slowly from day to day, until fog sets in. While this after-ripening in the cold, in the case of acid or neutral emulsions is quite small, in the presence of ammonia, ammonium carbonate and sodium carbonate, it becomes understandably greater" (*Die Photographisch-Chemische Industrie*, p. 20).

From such observations came the after-ripening technique, that is, a continued digestion of the emulsion at an elevated temperature after the soluble bromides and other soluble salts have been removed by washing. Luppo-Cramer, (*Eder Handbuch*, Vol. 2, part 1, p. 65) writing in 1930, mentions after-ripening and states that he has used it for a number of years. Yet, Wall, in his book (*Photographic Emulsions*) published in 1929, fails to give a single preparation in which it is used. Carroll and Hubbard, in their classic paper mentioned above, state "recent literature has included specific if qualitative references to the fact that the sensitivity of an emulsion may be enormously increased by digestion after washing but the general impression of the emulsion-making process is based on early literature which cautions against such treatment." This was written in 1931. They continue in their report to give a complete study of the phenomenon and their results indicate that there is at least a 4 times increase in speed. At the end of the after-ripening stabilizers are added to the emulsion after which it may be stored until

needed for coating. The sensitizing agents and other finals to give the emulsion desired stability, life, coating ease, etc., are generally added just before the coating operation.

The differences between ripening and after-ripening became clear after the discovery by S. E. Sheppard of the presence of chemical sensitizing agents in gelatin (*Phot. Jour.*, Vol. 65 [1925], p. 380). These were characterized by the presence of a labile sulfur group within the molecule. These compounds, when activated by heat in the absence of free halide ions, and especially in the presence of alkali, react with silver halides to form silver sulfide, supposedly the sensitivity specks previously shown to be present in the emulsion grains. This is the reaction that is postulated to take place during the after-ripening stage. In an ammonia type of emulsion, after-ripening takes place to some degree simultaneously with ripening since the solution is strongly alkaline at this time.

There is one other step in emulsion making that is of great importance and one which has some relationship to the problem of the latent image. This is gold sensitization. For this story we turn to Dr. F. W. H. Mueller, director of research and development at Ansco (*Photographic Science and Technique*, Vol. 16 [1950], p. 47). According to Dr. Mueller, who worked very closely with Dr. Koslowsky, it was that scientist who first demonstrated in 1936 that a very appreciable increase in emulsion speed was obtained if ammonium or alkali aurous thiocyanate were added to the emulsion during the after-ripening stage (R. Koslowsky and H. Mueller, *Agfa Film Plant, Wolfen, Germany. Reports*, September-October 1936. "Bibliography of Scientific and Industrial Reports" Vol. 8, p. 873, PB 84987 frames 8366-7). The relationship between gold sensitization and the latent image will be discussed later when a detailed discussion of the properties of the latent image will be reviewed.

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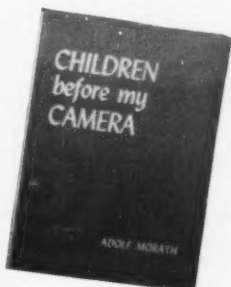
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CONTEST TECHNIQUES

If 45 Graflex contest winners say that walking away with prizes isn't sheer luck, there must be something to it. Technique, a requisite for the salon and contest competitor, certainly is here to stay, and the following tips are only some of the things the 45 winners have to say about it.

Originality. The importance of being one's self cannot be overstated. Beginners, usually carbon-copy-ers prone to duplicate the good pictures they've seen elsewhere, tend to forget their own imaginations. "The kitten-in-a-basket type of picture was good once!"

Organization of ideas. Thinking about shots—even before buying film—is imperative. To make notes of set-ups is helpful and the ability to select and discard among these is the sign of the intelligent and creative photographer.

No film-pinchers here. One shot seldom gets the picture, and it is advisable to take a picture from several angles and with various lighting effects. Film becomes expensive only when we don't give it a chance, by making many exposures, to help find the shot we're after.

Selecting critics. To obtain an honest reaction to our photographic work it is well to show pictures to people who know nothing at all about photography. If the shots have an inherent appeal, they, our critics, will react and tell us. Such a system is useful especially when one is about to enter a contest and has more pictures to submit than are allowed.

Self-criticism. Although in a given moment it is difficult to be objective about one's own work, it is possible, over a period of time for us to clarify our own criticisms. Suppose we hang potential contest entries on a wall where they can be seen every day. If, after some days, certain of them still rouse interest, in all probability they will comprise a selection of entries.

Restricted subject material. We must be well aware of the type of picture called for in a contest with restricted subject material. It is, after all, quite useless to submit a shot of the most bucolic cow ever to a contest sponsored by the National Fire Protection Association.

Technical quality of photographs must of course be as near perfect as possible (newtype shots which have to be taken quickly are excepted) and if they can stand it, enlarged to 11x14, if permitted by contest rules.

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SALON CALENDAR

Salon and Exhibit	Address	Closing Date	Entry
21st Boston International Exhibition of Photography Boston Camera Club (March 9-16, 1952)	Miss Selma Koehler Salon Secretary 122 St. Stephen St. Boston 15, Mass.	Feb. 10	*
Rochester International Salon of Photography (Mar. 7-30, 1952)	Dr. Robert F. Edgerton 11 Fineside Dr. Rochester 18, N. Y.	Feb. 14	write for details
16th Philadelphia International Exhibition of Photography (Mar. 8-30, 1952)	Prints: Free Library Philadelphia 3, Pa. Print Entries and Fees: Miss Marion Knight 1123 Harrison St. Philadelphia 24, Pa. Slides, Fees, Forms: Mrs. Ruth N. Clery 2016 Arthur St. Philadelphia 5, Pa.	Feb. 16	*
16th Virginia Photographic Salon Valentine Museum (March 6-April 6, 1952)	Mr. L. E. Walton, Jr. Salon Director Camera Club of Richmond 2818 Irisdale Ave. Richmond 28, Va.	Feb. 16	*
International Salon and Exhibition of the Worcestershire Camera and Cine Club (Mar. 15-Apr. 15, 1952)	C. J. Morrall 57, The Tything Worcester, England	Feb. 20	*
39th Annual Pittsburgh Salon of Photographic Art Carnegie Institute Pittsburgh, Pa. (Mar. 14-Apr. 13, 1952)	Salon Secretary 92 Estella Ave. Pittsburgh, Pa.	Prints: Feb. 20 Color: Feb. 27	PSA recommendations as to return of prints and slides but light box not used in judging
10th Salon Albert 1st Charleroi, Belgium (Apr. 13-27, 1952)	Mr. Roger Populaire 18 rue J. Destree, Charleroi, Belgium	Feb. 28	4 prints \$1 fee
Leonard Missonne Prize for a Landscape. Competition coinciding with Salon Albert 1st	See above	Feb. 28	write for details
Sixth Annual Greater Iowa Photographic Contest Des Moines Art Center	Iowa Development Commission National Bldg., 708 Central, Des Moines 9, Iowa	Feb. 28	6 prints 6 transparencies
III ^e Salon Photographique International de Tangier Tangier, Morocco (Mar. 22-30, 1952)	Mr. Armand Butthol Hon. Secretary Tangier Photo-Club 34, rue de Tetouan Tangier, Morocco (include postage for airmail reply)	Feb. 29	4 prints \$6 fee
Eighth San Francisco International Color Slide Exhibit (Mar. 15-22, 1952)	Burton H. Ladenshohn Photochrome Club of San Francisco PO Box 188 San Francisco 1, Calif.	Mar. 1	4 2x2 slides \$1 fee
Eighth Canadian International Exhibition of Color Photography Royal Ontario Museum Theatre (Mar. 24-26, 1952)	W. J. Blackhall c/o Toronto Camera Club 2 Gould St. Toronto, Ont.	Mar. 8	*
1952 Seattle International Exhibition of Photography Seattle Art Museum (Apr. 9-May 4, 1952)	Vern L. Arnold 9001 24th Ave. N.W. Seattle 7, Wash.	Mar. 10	*
16th South African Salon of Photography (May-Aug., 1952)	Hon. Salon Secretary PO Box 7024 Johannesburg, S. Africa	Mar. 15	4 prints
"Tops in Photography" Print Show New Yorker Hotel, New York (Mar. 24, 1952)	William J. Hunn Metropolitan Camera Club Council, Inc. 310 Riverside Dr. New York 25, N.Y.	Mar. 29	monochrome and color prints
60th Diamond Jubilee International Salon of Photography Avon Galleries Toronto (Apr. 29-May 10, 1952)	Rex Frost Salon Chairman Toronto Camera Club 37 Bloor St. West Toronto 5, Ont.	Mar. 30	write for details
First International Exhibition of the Associaçao Brasileira de Arte Fotografica Rio de Janeiro (June 14, 1952)	For Canada, Mexico and U.S.A. write Ray Weiss 1800 N. Farwell Ave. Milwaukee 2, Wis. or Rua Santa Luzia 173, conjunto 705 Rio de Janeiro	Mar. 31	*
First Italian Exhibition of Photographic Color Prints	Associazione Fotografica Italiana Via Maria Vittoria 23 Turin, Italy	Mar. 31	*
Third International Color Slides Festival La Stampa, Turin, Italy (May 15-31, 1952)	Dr. Renato Fioravanti Societa Fotografica Subalpina Via Bogino 25 Turin, Italy	Mar. 31	*

* Photographic Society of America rules observed.
Please submit salon calendar notices at least ten weeks in advance of publication to:
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Glamour Guide

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